# GENERAL DYNAMICS

Ordnance and Tactical Systems Munition Services 44

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AWMD/WRAP-MIRP

April 4, 2013

Don Dicks Hazardous Waste Program Missouri Dept. of Natural Resources P. O. Box 176 Jefferson City, MO 65102-0176

Re:

EBV Explosives Environmental Company Permit No. MOD985798164 MDNR Letter sent May 24, 2011 on Building #3 Release Report

Dear Don:

EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS) has complete the additional sampling requested in the area of the spill of ash from the air pollution control system at Building #3. Attached is the Sampling Report for your review.

If you have any questions regarding this modification, please contact me at (610) 298-3085.

Regards,

David R. Zogliby

Senior Director of Marketing

& Commercial Contracts

cc. Tim O'Brien, MDNR HWP Ken Herstowski, EPA Region 7

**RCRA** 

603716

523736

# Release Report #2 Building #3 Spill On 9/24/2010

EBV Explosives Environmental Company dba, General Dynamics-OTS Munition Services Submitted: April 4, 2013

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## Release Report #2 Building #3 Spill On 9/24/2010

EBV Explosives Environmental Company dba General Dynamics Ordnance and Tactical Systems Munition Services (GD-OTS MS) had a spill involving APCS Ash from Building #3 on 9/24/2010. The following is the timeline of events on the reporting, clean-up and sampling of the spill area.

### **Timeline of Events**

9/28/2010 - The spill was found at about 4 pm.

9/29/2010 - MDNR was notified verbally in the morning and by email.

9/30/2010 - Spill was cleaned up on and placed into three roll-off containers.

10/25/2010 - Sampling Work Plan submitted to MDNR

11/22/2010 - GD-OTS MS collected the required samples on and submitted for analysis.

12/8/2010 - Analytical results were received.

1/7/2011 - Release Report was submitted to MDNR.

5/24/2011 - MDNR notified GD-OTS MS that additional sampling was required.

8/12/2011 - GD-OTS MS submitted the required sampling plan.

7/25/2012 - MDNR approved the sampling plan.

8/17/2012 - GD-OTS MS collected the required samples on and submitted for analysis.

9/20/2012 - Analytical results were received.

9/27/2012 - A copy of the sample results were submitted to MDNR.

The following is the Release Report on the additional sampling done on 8/17/2012.

### **Sample Collection**

The samples of the soil from the cleaned spill area were collected based on the procedures and requirements detailed in the approved Sampling Plan. The soil samples were collected on August 17, 2012 between 8:00 am and 11:00 am. The soil at the sample location was loosened in a 6" to 8" circle about 6" deep with a spade. This soil was thoroughly mixed with the spade and a representative grab sample was taken with a scoop and put into a clean sample container received from the lab were the samples were being sent. The container was sealed and marked and recorded on the Chain of Custody log. Then the equipment was wiped clean and moved to the next sample location. This process was repeated at each sample location marked on the drawing "Building 3 Release Location" in Appendix #1. The Analytical Results from Pace Labs and Chain of Custody logs are found in Appendix #2.

## **Summary of the Analytical Results**

**Building #3 Ash Spill Sampling August 2012** 

						<u> </u>	rugust z	70.1.2			
Samples No.	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Mercury	Hex Chrome	Chloride	D/F TEQ	Perchlorate
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ng/kg	mg/kg dry wt basis
31/32A	4.0	48.6	ND	15.9	11.3	ND	ND	ND	123	13	0.680
33/34	4.2	57.0	ND	14.7	13.1	ND	ND	ND	127	2.4	0.355
35/36	3.9	54.5	ND	11.3	14.2	ND	ND	ND	121	5.3	0.417
41/42	2.9	47.0	1.2	12.3	16.1	ND	ND	ND	184	17	0.566
43/33	2.2	67.2	0.7	8.6	19.7	ND	0.040	ND	161	3	1.150
49/50	2.4	73.2	0.6	7.0	20.2	ND	0.040	ND	ND ND	0.93	0.115
51/52	3.6	67.4	0.8	35.1	17.4	ND	ND	ND	145	16	2.510
53/54	2.9	63.2	1.9	37.0	28.6	ND	ND	ND	138	16	3.250
55/56	5.0	51.7	ND	13.7	12.9	ND	0.039	ND	131	14	1.800
57/58	5.0	57.3	ND	13.9	14.6	ND	ND	ND	124	12	0.503
Average	3.6	58.7	1.03*	17.0	16.8		0.040*		139*	9.96	1.135
EPA Regional Screening	Level (RSL	ا د) Summary	Table Novem	ber 2012							
Resident Soil	.039	15,000	7.0	120,000	400	390	10/23	0.29	7.500	04	
MRBCA Tech Guidance	· · · · · · · · · · · · · · · · · · ·						emental / Sal		7,500	94	55
B-1 Lowest Target Level	3.89						Cificiliai / Sai	ıs			

Note: \* Non-detected (ND) not included in calculation.

## Conclusion

All results are below EPA Regional Screening Levels with the exception of Arsenic which is below MRBCA B-1 Lowest Target Level. Arsenic is naturally occurring in the soil of the region.

# ANALYTICAL DATA QA/QC SUMMARY

The QA/QC review was done to evaluate all analytical results be in accordance with precision, accuracy and representativeness.

## QA/QC SUMMARY

All the laboratory generated data was valid and usable for the sampling plan. The exceptions that were noted are the result of either matrix interferences or were accepted based on laboratory control sample recovery. These minor exceptions did not result in disqualifying any data.

### Accuracy

A program of sample spiking was used to evaluate laboratory accuracy. This program included analysis of the matrix spike (MS) / matrix spike duplicate (MSD) samples, laboratory control samples (LCS) samples, and method blanks.

Accuracy is expressed as the percent recovery of an analyte that has been added (spiked) to either a laboratory or environmental sample in a known concentration before extraction and subsequent analysis.

Dioxins/Furans - All Method Blanks, LCS and MS/MSD samples were within control limits.

**Metals** - All Method Blanks and LCS samples were within control limits. Pace reported that the MS/MSD percent recovery exceeded the QC limits of but were accepted based on LCS recovery.

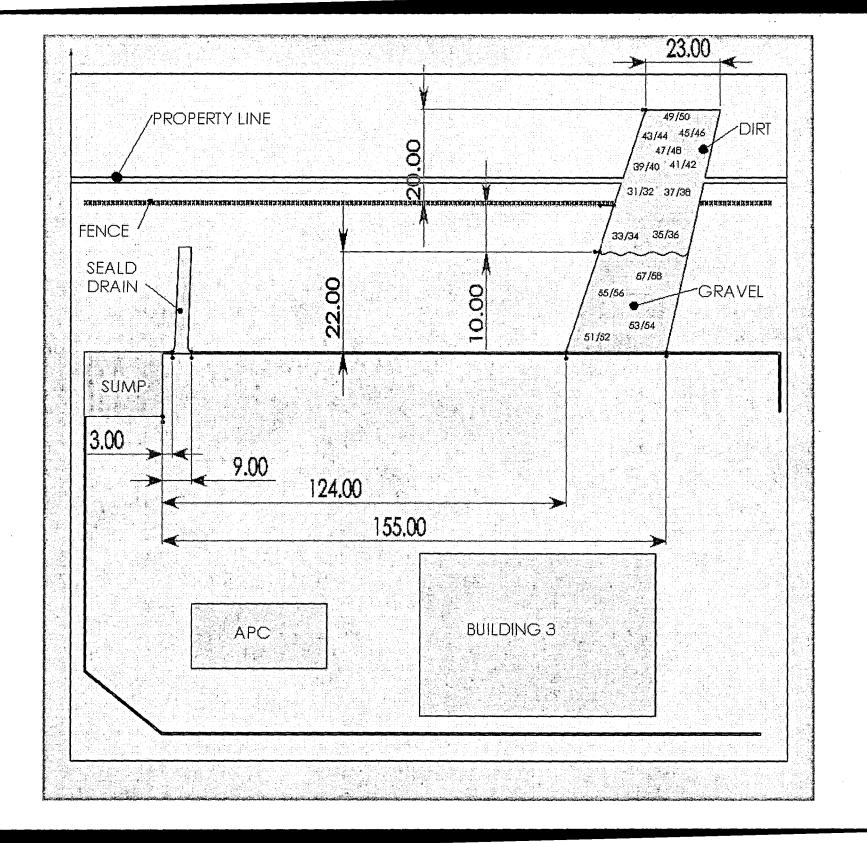
Mercury - All Method Blanks and LCS samples were within control limits. Pace reported that the MS/MSD percent recovery exceeded the QC limits of but were accepted based on LCS recovery.

**Hexavalent Chromium -** All Method Blanks, LCS and MS/MSD samples were within control limits.

Chloride - All Method Blanks, LCS and MS/MSD samples were within control limits.

Perchlorate - All Method Blanks, LCS and MS/MSD samples were within control limits.

# Appendix #1 - Sample Locations



# Appendix #2 - Analytical Results From Pace Labs



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

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September 20, 2012

Robert Guy General Dynamics - OTS - Munition Services 4174 County Rd 180 Carthage, MO 64836

RE: Project: REL1-11-11 B-3

Pace Project No.: 60127664

## Dear Robert Guy:

Enclosed are the analytical results for sample(s) received by the laboratory on August 24, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Shui Dosonstande

Sherri Rosenstangle

sherri.rosenstangle@pacelabs.com **Project Manager** 

**Enclosures** 

cc: Dave Zoghby, General Dynamics - OTS - Munit





Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 (913)599-5665

#### **CERTIFICATIONS**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

#### Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414 A2LA Certification #: 2926.01 Alaska Certification #: UST-078 Alaska Certification #MN00064 Arizona Certification #: AZ-0014 Arkansas Certification #: 88-0680 California Certification #: 01155CA Colorado Certification #Pace Connecticut Certification #: PH-0256 EPA Region 8 Certification #: Pace Florida/NELAP Certification #: E87605 Georgia Certification #: 959
Hawaii Certification #Pace
Idaho Certification # MN00064 Illinois Certification #: 200011 Kansas Certification #: E-10167 Louisiana Certification #: 03086 Louisiana Certification #: LA080009 Maine Certification #: 2007029 Maryland Certification #: 322

Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN\_00064
New Jersey Certification #: MN-002
New York Certification #: 1647
North Carolina Certification #: 530
North Dakota Certification #: 8-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: 02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia/DCLS Certification #: 002521
Virginia/VELAP Certification #: 460163
Washington Certification #: 382
Wisconsin Certification #: 999407970

#### **Indiana Certification IDs**

7726 Moller Road, Indianapolis, IN 46268 Illinois Certification #: 200074 Indiana Certification #: C-49-06 Kansas Certification #: E-10247 Kentucky Certification #: 0042

Michigan DEQ Certification #: 9909

Mississippi Certification #: Pace

Minnesota Certification #: 027-053-137

Louisiana/NELAC Certification #: 04076 Ohio VAP Certification #: CL0065 Pennsylvania Certification #: 68-04991 West Virginia Certification #: 330

#### **Kansas Certification IDs**

9608 Loiret Boulevard, Lenexa, KS 66219 A2LA Certification #: 2456.01 Arkansas Certification #: 12-019-0 Illinois Certification #: 002885 lowa Certification #: 118 Kansas/NELAP Certification #: E-10116 Louisiana Certification #: 03055 Nevada Certification #: KS000212008A Oklahoma Certification #: 9205/9935 Texas Certification #: T104704407-12-3 Utah Certification #: KS000212012-2





## **SAMPLE SUMMARY**

Project:

REL1-11-11 B-3

Pace Project No.: 60127664

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60127664001	31/32A	Solid	08/17/12 00:00	08/24/12 08:30
60127664002	33/34A	Solid	08/17/12 00:00	08/24/12 08:30
60127664003	35/36A	Solid	08/17/12 00:00	08/24/12 08:30
60127664004	41/42A	Solid	08/17/12 00:00	08/24/12 08:30
60127664005	43/44A	. Solid	08/17/12 00:00	08/24/12 08:30
60127664006	49/50A	Solid	08/17/12 00:00	08/24/12 08:30
60127664007	51/52A	Solid	08/17/12 00:00	08/24/12 08:30
60127664008	53/54A	Solid	08/17/12 00:00	08/24/12 08:30
60127664009	55/56A	Solid	08/17/12 00:00	08/24/12 08:30
60127664010	57/58A	Solid	08/17/12 00:00	08/24/12 08:30



## **SAMPLE ANALYTE COUNT**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60127664001	31/32A	EPA 6010	JGP	6	PASI-K
		EPA 7471	TJT	1	PASI-K
		ASTM D2974	DWC	1	PASI-K
		EPA 7196A	DAE	1	PASI-I
		EPA 9056	OL	1	PASI-K
60127664002	33/34A	EPA 6010	JGP	6	PASI-K
		EPA 7471	TJT	1	PASI-K
		ASTM D2974	JDL	1	PASI-M
		EPA 7196A	DAE	1	PASI-I
		EPA 9056	OL	1	PASI-K
60127664003	35/36A	EPA 6010	JGP	6	PASI-K
		EPA 7471	TJT	1	PASI-K
		ASTM D2974	JDL	. 1	PASI-M
		EPA 7196A	DAE	1	PASI-I
		EPA 9056	OL	1	PASI-K
0127664004	41/42A	EPA 6010	JGP	6	PASI-K
		EPA 7471	TJT	1	PASI-K
		ASTM D2974	DWC	1	PASI-K
		EPA 7196A	DAE	1	PASI-I
		EPA 9056	OL	1	PASI-K
0127664005	43/44A	EPA 6010	JGP	6	PASI-K
		EPA 7471	TJT	1	PASI-K
		ASTM D2974	DWC	1	PASI-K
		EPA 7196A	DAE	1	PASI-I
		EPA 9056	OL	1	PASI-K
0127664006	49/50A	EPA 6010	JGP	6	PASI-K
		EPA 7471	TJT	1	PASI-K
		ASTM D2974	DWC	1	PASI-K
		EPA 7196A	DAE	1	PASI-I
		EPA 9056	OL	1	PASI-K
0127664007	51/52A	EPA 6010	JGP	6	PASI-K
		EPA 7471	TJT	1	PASI-K
		ASTM D2974	DWC	1	PASI-K
		EPA 7196A	DAE	1	PASI-I
		EPA 9056	OL	1	PASI-K
0127664008	53/54A	EPA 6010	JGP	6	PASI-K
		EPA 7471	TJT	1	PASI-K

## **REPORT OF LABORATORY ANALYSIS**

Page 4 of 24

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## **SAMPLE ANALYTE COUNT**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		ASTM D2974	DWC	1	PASI-K
		EPA 7196A	DAE	1	PASI-I
		EPA 9056	OL	1	PASI-K
60127664009	55/56A	EPA 6010	JGP	6	PASI-K
		EPA 7471	TJT	1	PASI-K
		ASTM D2974	DWC	1	PASI-K
		EPA 7196A	DAE	1	PASI-I
		EPA 9056	OL	1	PASI-K
60127664010	57/58A	EPA 6010	JGP	6	PASI-K
		EPA 7471	TJT	1	PASI-K
		ASTM D2974	DWC	1	PASI-K
		EPA 7196A	DAE	1	PASI-I
		EPA 9056	OL	1	PASI-K





Project:

REL1-11-11 B-3

60127664 Pace Project No.:

Sample: 31/32A

Lab ID: 60127664001

Collected: 08/17/12 00:00 Received: 08/24/12 08:30 Matrix: Solid

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Met	hod: EPA 601	0 Preparation Meth	nod: EF	PA 3050			
Arsenic	4.0 m	g/kg	0.91	1	08/28/12 17:35	08/30/12 17:48	7440-38-2	M1
Barium	48.6 m	g/kg	0.91	1	08/28/12 17:35	08/30/12 17:48	7440-39-3	M1
Cadmium	ND m	g/kg	0.45	1	08/28/12 17:35	08/30/12 17:48	7440-43-9	M1
Chromium	15.9 m	g/kg	0.45	1	08/28/12 17:35	08/30/12 17:48	7440-47-3	M1
Lead	<b>11.3</b> m	g/kg	0.45	1	08/28/12 17:35	08/30/12 17:48	7439-92-1	M1
Selenium	ND m	g/kg	1.4	1	08/28/12 17:35	08/30/12 17:48	7782-49-2	M1
7471 Mercury	Analytical Met	hod: EPA 747	1 Preparation Meth	nod: EF	PA 7471			
Mercury	ND m	g/kg	0.038	1	09/07/12 16:45	09/08/12 12:52	7439-97-6	
Percent Moisture	Analytical Met	hod: ASTM D	2974					
Percent Moisture	4.8 %		0.50	1		09/06/12 00:00	*	
7196 Chromium, Hexavalent	Analytical Met	hod: EPA 719	6A					
Chromium, Hexavalent	ND m	g/kg	2.0	1	09/13/12 12:10	09/14/12 09:40	18540-29-9	
9056 IC Anions	Analytical Met	hod: EPA 905	6 Preparation Meth	nod: EF	PA 9056			
Chloride	<b>123</b> m	a/ka	100	10	09/05/12 14:00	09/06/12 09:55	16887-00-6	





Project:

REL1-11-11 B-3

Pace Project No.:

Sample: 33/34A

60127664

Lab ID: 60127664002 Collected: 08/17/12 00:00 Received: 08/24/12 08:30 Matrix: Solid

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Met	hod: EPA 601	0 Preparation Meth	nod: EF	PA 3050			
Arsenic	4.2 m	g/kg	0.93	1	08/28/12 17:35	08/30/12 17:58	7440-38-2	
Barium	<b>57.0</b> mg	g/kg	0.93	1	08/28/12 17:35	08/30/12 17:58	7440-39-3	
Cadmium	ND m	g/kg	0.46	1	08/28/12 17:35	08/30/12 17:58	7440-43-9	
Chromium	14.7 m	g/kg	0.46	1	08/28/12 17:35	08/30/12 17:58	7440-47-3	
Lead	13.1 m	g/kg	0.46	1	08/28/12 17:35	08/30/12 17:58	7439-92-1	
Selenium	ND m	g/kg	1.4	1	08/28/12 17:35	08/30/12 17:58	7782-49-2	
7471 Mercury	Analytical Met	hod: EPA 747	1 Preparation Meth	nod: EF	PA 7471			
Mercury	ND m	g/kg	0.039	1	09/07/12 16:45	09/08/12 12:54	7439-97-6	
Dry Weight	Analytical Met	hod: ASTM D	2974					
Percent Moisture	0.94 %		0.10	1		08/31/12 00:00		
7196 Chromium, Hexavalent	Analytical Meti	hod: EPA 719	6A					
Chromium, Hexavalent	·ND m	g/kg	2.0	1	09/13/12 12:10	09/14/12 09:40	18540-29-9	
9056 IC Anions	Analytical Met	hod: EPA 905	6 Preparation Meth	nod: EF	PA 9056			
Chloride	<b>127</b> mg	a/ka	100	10	09/05/12 14:00	09/06/12 10:47	16887-00-6	





Project:

REL1-11-11 B-3

Pace Project

60127664

Sample: 35/36A	Lab ID: 60127664003	Collected: 08/17/1	2 00:00	Received: 08	8/24/12 08:30 N	//atrix: Solid	
Results reported on a "wet-weigh	t" basis						
Parameters	Results Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
6010 MET ICP	Analytical Method: EPA 60	10 Preparation Meth	nod: EP	A 3050			
Arsenic	3.9 mg/kg	0.93	1	08/28/12 17:35	08/30/12 18:08	7440-38-2	
Barium	<b>54.5</b> mg/kg	0.93	1	08/28/12 17:35	08/30/12 18:08	7440-39-3	
Cadmium	ND mg/kg	0.46	1	08/28/12 17:35	08/30/12 18:08	7440-43-9	
Chromium	11.3 mg/kg	0.46	1	08/28/12 17:35	08/30/12 18:08	7440-47-3	
Lead	<b>14.2</b> mg/kg	0.46	1	08/28/12 17:35	08/30/12 18:08	7439-92-1	
Selenium	ND mg/kg	1.4	1	08/28/12 17:35	08/30/12 18:08	7782-49-2	
7471 Mercury	Analytical Method: EPA 74	71 Preparation Meth	nod: EP	A 7471			
Mercury	ND mg/kg	0.047	1	09/07/12 16:45	09/08/12 12:56	7439-97-6	
Dry Weight	Analytical Method: ASTM I	02974					
Percent Moisture	1.4 %	0.10	1		08/31/12 00:00		
7196 Chromium, Hexavalent	Analytical Method: EPA 71	96A					
Chromium, Hexavalent	ND mg/kg	4.0	2	09/13/12 12:10	09/14/12 09:40	18540-29-9	D3
9056 IC Anions	Analytical Method: EPA 90	56 Preparation Meth	nod: EP	A 9056			
Chloride	121 mg/kg	100	10	09/05/12 14:00	09/06/12 11:57	16887-00-6	





Project:

REL1-11-11 B-3

Pace Project No.:

Sample: 41/42A

60127664

Lab ID: 60127664004

Collected: 08/17/12 00:00 Received: 08/24/12 08:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
6010 MET ICP	Analytical Met	hod: EPA 601	0 Preparation Meth	nod: EF	A 3050			
Arsenic	<b>2.9</b> m	g/kg	0.91	1	08/28/12 17:35	08/30/12 18:12	7440-38-2	
Barium	<b>47.0</b> m	g/kg	0.91	1	08/28/12 17:35	08/30/12 18:12	7440-39-3	
Cadmium	<b>1.2</b> m	g/kg	0.45	1	08/28/12 17:35	08/30/12 18:12	7440-43-9	
Chromium	<b>12.3</b> m	g/kg	0.45	1	08/28/12 17:35	08/30/12 18:12	7440-47-3	
Lead	<b>16.1</b> m	g/kg	0.45	1	08/28/12 17:35	08/30/12 18:12	7439-92-1	
Selenium	ND m	g/kg	1.4	1	08/28/12 17:35	08/30/12 18:12	7782-49-2	
7471 Mercury	Analytical Met	hod: EPA 747	1 Preparation Meth	nod: EF	PA 7471			
Mercury	ND m	g/kg	0.047	1	09/07/12 16:45	09/08/12 12:59	7439-97-6	
Percent Moisture	Analytical Met	hod: ASTM D	2974					
Percent Moisture	5.0 %		0.50	1		09/06/12 00:00		
7196 Chromium, Hexavalent	Analytical Met	hod: EPA 719	6A					
Chromium, Hexavalent	ND m	g/kg	4.0	2	09/13/12 12:10	09/14/12 09:40	18540-29-9	D3
9056 IC Anions	Analytical Met	hod: EPA 905	6 Preparation Meth	nod: EF	A 9056			
Chloride	184 m	g/kg	100	10	09/05/12 14:00	09/06/12 04:17	16887-00-6	





Project:

REL1-11-11 B-3

Pace Project No.:

Sample: 43/44A

60127664

Lab ID: 60127664005

Collected: 08/17/12 00:00 Received: 08/24/12 08:30 Matrix: Solid

Results reported on a "wet-weigh	nt" basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Met	hod: EPA 601	0 Preparation Meti	nod: EF	PA 3050			
Arsenic	<b>2.2</b> m	g/kg	0.94	1	08/28/12 17:35	08/30/12 18:15	7440-38-2	
Barium	<b>67.2</b> m	g/kg	0.94 .	1	08/28/12 17:35	08/30/12 18:15	7440-39-3	
Cadmium	<b>0.68</b> m	g/kg	0.47	1	08/28/12 17:35	08/30/12 18:15	7440-43-9	
Chromium	8.6 m	g/kg	0.47	1	08/28/12 17:35	08/30/12 18:15	7440-47-3	
Lead	<b>19.7</b> m	g/kg	0.47	1	08/28/12 17:35	08/30/12 18:15	7439-92-1	
Selenium	ND m	g/kg	1.4	1	08/28/12 17:35	08/30/12 18:15	7782-49-2	
7471 Mercury	Analytical Met	hod: EPA 747	1 Preparation Meth	nod: EF	PA 7471			
Mercury	<b>0.040</b> m	g/kg	0.039	1	09/07/12 16:45	09/08/12 13:01	7439-97-6	
Percent Moisture	Analytical Met	hod: ASTM D	2974					
Percent Moisture	2.7 %	,	0.50	1		09/06/12 00:00		
7196 Chromium, Hexavalent	Analytical Met	hod: EPA 719	6A					
Chromium, Hexavalent	ND m	g/kg	10.0	5	09/13/12 12:10	09/14/12 09:40	18540-29-9	D3
9056 IC Anions	Analytical Met	hod: EPA 905	6 Preparation Meth	nod: EF	PA 9056			
Chloride	161 m	g/kg	100	10	09/05/12 14:00	09/06/12 04:35	16887-00-6	





Project:

REL1-11-11 B-3

Pace Project No.:

60127664

	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	00
Sample:	49/50A	

Lab ID: 60127664006

Collected: 08/17/12 00:00 Received: 08/24/12 08:30 Matrix: Solid

Results reported on a "wet-weigh	nt" basis							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Met	thod: EPA 601	0 Preparation Me	thod: El	PA 3050			
Arsenic	<b>2.4</b> m	g/kg	0.96	1	08/28/12 17:35	08/30/12 18:19	7440-38-2	
Barium	<b>73.2</b> m	g/kg	0.96	1	08/28/12 17:35	08/30/12 18:19	7440-39-3	
Cadmium	<b>0.57</b> m	g/kg	0.48	1	08/28/12 17:35	08/30/12 18:19	7440-43-9	
Chromium	<b>7.0</b> m	g/kg	0.48	1.	08/28/12 17:35	08/30/12 18:19	7440-47-3	
Lead	<b>20.2</b> m	g/kg	0.48	1	08/28/12 17:35	08/30/12 18:19	7439-92-1	
Selenium	ND m	g/kg	1,4	1	08/28/12 17:35	08/30/12 18:19	7782-49-2	
7471 Mercury	Analytical Met	hod: EPA 747	1 Preparation Me	thod: El	PA 7471			
Mercury	<b>0.040</b> m	g/kg	0.038	1	09/07/12 16:45	09/08/12 13:03	7439-97-6	
Percent Moisture	Analytical Met	hod: ASTM D	2974					
Percent Moisture	4.4 %		0.50	1		09/06/12 00:00		
7196 Chromium, Hexavalent	Analytical Met	hod: EPA 719	6A					
Chromium, Hexavalent	ND m	g/kg	2,0	1	09/13/12 12:10	09/14/12 09:40	18540-29-9	
9056 IC Anions	Analytical Met	hod: EPA 905	6 Preparation Me	thod: Ef	PA 9056			
Chloride	ND m	g/kg	100	10	09/05/12 14:00	09/06/12 04:52	16887-00-6	





Project:

REL1-11-11 B-3

Pace Project No.: 60

Sample: 51/52A

60127664

Lab ID: 60127664007 Collected: 08/17/12 00:00 Received: 08/24/12 08:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
6010 MET ICP	Analytical Me	thod: EPA 601	0 Preparation Meth	nod: EF	PA 3050			
Arsenic	` 3.6 m	ıg/kg	0.93	1	08/28/12 17:35	08/30/12 18:22	7440-38-2	
Barium	<b>67.4</b> m	ıg/kg	0.93	1	08/28/12 17:35	08/30/12 18:22	7440-39-3	
Cadmium	<b>0.81</b> m	ıg/kg	0.46	1	08/28/12 17:35	08/30/12 18:22	7440-43-9	
Chromium	<b>35.1</b> m	ıg/kg	0.46	1	08/28/12 17:35	08/30/12 18:22	7440-47-3	
Lead	<b>17.4</b> m	ıg/kg	0.46	1	08/28/12 17:35	08/30/12 18:22	7439-92-1	
Selenium	ND m	ıg/kg	1.4	1	08/28/12 17:35	08/30/12 18:22	7782-49-2	
7471 Mercury	Analytical Me	thod: EPA 747	1 Preparation Meth	nod: EF	PA 7471			
Mercury	ND m	ıg/kg	0.038	1	09/07/12 16:45	09/08/12 13:05	7439-97-6	
Percent Moisture	Analytical Me	thod: ASTM D	2974					
Percent Moisture	3.4 %	5	0.50	1		09/06/12 00:00		
7196 Chromium, Hexavalent	Analytical Me	thod: EPA 719	6A					
Chromium, Hexavalent	ND m	g/kg	2.0	1	09/13/12 12:10	09/14/12 09:40	18540-29-9	
9056 IC Anions	Analytical Me	thod: EPA 905	6 Preparation Meth	nod: EF	PA 9056			
Chloride	145 m	ıg/kg	100	10	09/05/12 14:00	09/06/12 05:09	16887-00-6	





Project:

REL1-11-11 B-3

Pace Project No.:

Sample: 53/54A

60127664

Lab ID: 60127664008

Collected: 08/17/12 00:00 Received: 08/24/12 08:30 Matrix: Solid

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
6010 MET ICP	Analytical Met	hod: EPA 601	O Preparation Meth	nod: EF				
Arsenic	2.9 m		0.96	1		08/30/12 18:25	7440-38-2	
Barium	<b>63.2</b> m		0.96	1	08/28/12 17:35	08/30/12 18:25	7440-39-3	
Cadmium	<b>1.9</b> m		0.48	1	08/28/12 17:35	08/30/12 18:25	7440-43-9	
Chromium	<b>37.0</b> m	g/kg	0.48	1	08/28/12 17:35	08/30/12 18:25	7440-47-3	
Lead	<b>28.6</b> m	g/kg	0.48	1	08/28/12 17:35	08/30/12 18:25	7439-92-1	
Selenium	ND m	g/kg	1.4	1	08/28/12 17:35	08/30/12 18:25	7782-49-2	
7471 Mercury	Analytical Met	hod: EPA 747	1 Preparation Meth	od: EF	PA 7471			
Mercury	ND m	g/kg	0.044	1	09/07/12 16:45	09/08/12 13:07	7439-97-6	
Percent Moisture	Analytical Met	hod: ASTM D	2974					
Percent Moisture	2.3 %		0.50	1		09/06/12 00:00		
7196 Chromium, Hexavalent	Analytical Met	hod: EPA 719	6A					
Chromium, Hexavalent	ND m	g/kg	4.0	2	09/13/12 12:10	09/14/12 09:40	18540-29-9	D3
9056 IC Anions	Analytical Met	hod: EPA 905	6 Preparation Meth	od: EF	PA 9056			
Chloride	<b>138</b> m	a/ka	100	10	09/05/12 14:00	09/06/12 05:27	16887-00-6	





Project:

REL1-11-11 B-3

Pace Project No.: 60127664 Sample: 55/56A

Lab ID: 60127664009

Collected: 08/17/12 00:00 Received: 08/24/12 08:30 Matrix: Solid

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
6010 MET ICP	Analytical Meti	nod: EPA 601	0 Preparation Meth	nod: EF	PA 3050			
Arsenic	<b>5.0</b> mg	g/kg	0.86	1	08/28/12 17:35	08/30/12 18:29	7440-38-2	
Barium	<b>51.7</b> mg	g/kg	0.86	1	08/28/12 17:35	08/30/12 18:29	7440-39-3	
Cadmium	ND mo	g/kg	0.43	1	08/28/12 17:35	08/30/12 18:29	7440-43-9	
Chromium	<b>13.7</b> mg	g/kg	0.43	1	08/28/12 17:35	08/30/12 18:29	7440-47-3	
Lead	<b>12.9</b> mg		0.43	1	08/28/12 17:35	08/30/12 18:29	7439-92-1	
Selenium	ND mg	g/kg	1.3	1	08/28/12 17:35	08/30/12 18:29	7782-49-2	
7471 Mercury	Analytical Meth	nod: EPA 747	1 Preparation Meth	od: EF	PA <b>74</b> 71			
Mercury	<b>0.039</b> mg	ı/kg	0.038	1	09/07/12 16:45	09/08/12 13:10	7439-97-6	
Percent Moisture	Analytical Meth	nod: ASTM D2	2974					
Percent Moisture	3.9 %		0.50	1		09/06/12 00:00		
7196 Chromium, Hexavalent	Analytical Meth	nod: EPA 7196	6A					
Chromium, Hexavalent	ND mg	ı/kg	2.0	1	09/13/12 12:10	09/14/12 09:40	18540-29-9	
9056 IC Anions	Analytical Meth	od: EPA 9056	Preparation Meth	od: EF	A 9056			
Chloride	<b>131</b> mg	ı/ka	100	10	09/05/12 14:00	09/06/12 05:44	16887-00-6	





Project:

REL1-11-11 B-3

Pace Project No.:
Sample: 57/58A

60127664

7004

Lab ID: 60127664010 Collected: 08/17/12 00:00 Received: 08/24/12 08:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
6010 MET ICP	Analytical Me	thod: EPA 601	0 Preparation Meth	nod: EF	PA 3050		. –	
Arsenic	<b>5.0</b> m	ıg/kg	0.98	1	08/28/12 17:35	08/30/12 18:32	7440-38-2	
Barium	<b>57.3</b> m	ıg/kg	0.98	1	08/28/12 17:35	08/30/12 18:32	7440-39-3	
Cadmium	ND m	ıg/kg	0.49	1	08/28/12 17:35	08/30/12 18:32	7440-43-9	
Chromium	13.9 m	ıg/kg	0.49	1	08/28/12 17:35	08/30/12 18:32	7440-47-3	
Lead	14.6 m	ıg/kg	0.49	1	08/28/12 17:35	08/30/12 18:32	7439-92-1	
Selenium	ND m	ıg/kg	1.5	1	08/28/12 17:35	08/30/12 18:32	7782-49-2	
7471 Mercury	Analytical Me	thod: EPA 747	1 Preparation Meth	od: EF	PA 7471			
Mercury	ND m	ıg/kg	0.038	1	09/07/12 16:45	09/08/12 13:16	7439-97-6	
Percent Moisture	Analytical Met	thod: ASTM D2	2974					
Percent Moisture	2.1 %	•	0.50	1		09/06/12 00:00		
7196 Chromium, Hexavalent	Analytical Met	thod: EPA 7196	6A				•	
Chromium, Hexavalent	ND m	g/kg	2.0	1	09/13/12 12:10	09/14/12 09:40	18540-29-9	
9056 IC Anions	Analytical Met	hod: EPA 9056	6 Preparation Meth	od: EF	A 9056			
Chloride	<b>124</b> m	a/ka	100	10	09/05/12 14:00	00/06/12 06:02	16887-00-6	





### **QUALITY CONTROL DATA**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

QC Batch:

MERP/6586

Analysis Method:

EPA 7471

QC Batch Method:

EPA 7471

Analysis Description:

Associated Lab Samples:

7471 Mercury

60127664008, 60127664009, 60127664010

METHOD BLANK: 1055530

Matrix: Solid

Associated Lab Samples:

60127664008, 60127664009, 60127664010

Blank

Reporting

Parameter

Parameter

Parameter

Units

Units

60127813011

Result

0.51

Result

Limit

Qualifiers

Mercury

mg/kg

ND

0.050 09/08/12 12:23

Analyzed

LABORATORY CONTROL SAMPLE: 1055531

Spike

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Mercury

mg/kg

Units

mg/kg

Conc. .5

0.57

114

80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

1055532

MS MSD

.39

1055533

MSD

MS

MSD

% Rec

Max

Mercury

Spike

.39

MS

Result

% Rec

Limits

RPD

Conc.

Spike Conc.

Result 0.98 1.1

% Rec 118

151 75-125

RPD 12

Qual 20 M1





## **QUALITY CONTROL DATA**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

QC Batch:

MPRP/19286

Analysis Method:

EPA 6010

QC Batch Method:

EPA 3050

Analysis Description:

6010 MET

Associated Lab Samples:

60127664001, 60127664002, 60127664003, 60127664004, 60127664005, 60127664006, 60127664007,

60127664008, 60127664009, 60127664010

METHOD BLANK: 1051590

Matrix: Solid

Associated Lab Samples:

60127664001, 60127664002, 60127664003, 60127664004, 60127664005, 60127664006, 60127664007,

60127664008, 60127664009, 60127664010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	1.0	08/30/12 17:28	
Barium	mg/kg	ND	1.0	08/30/12 17:28	
Cadmium	mg/kg	ND	0.50	08/30/12 17:28	
Chromium	mg/kg	ND	0.50	08/30/12 17:28	
Lead	mg/kg	ND	0.50	08/30/12 17:28	
Selenium	mg/kg	ND	1.5	08/30/12 17:28	

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	50	47.8	96	80-120	•
Barium	mg/kg	50	48.2	96	80-120	
Cadmium	mg/kg	50	48.1	96	80-120	
Chromium	mg/kg	50	46.9	94	80-120	
Lead	mg/kg	50	49.3	99	80-120	
Selenium	mg/kg	50	47.3	95	80-120	

MATRIX SPIKE & MATRIX S	SPIKE DUPLICATE	: 10515	92		1051593							
Danisation		27664001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/kg	4.0	49.6	47.8	38.8	34.3	70	63	75-125	12	20	M1
Barium	mg/kg	48.6	49.6	47.8	95.4	82.4	90	66	75-125	15	20	M1
Cadmium	mg/kg	ND	49.6	47.8	36.9	32.5	74	67	75-125	13	20	M1
Chromium	mg/kg	15.9	49.6	47.8	50.8	45.2	69	. 60	75-125	12	20	M1
Lead	mg/kg	11.3	49.6	47.8	49.6	42.6	76	65	75-125	15	20	M1
Selenium	ma/ka	ND	49.6	47.8	34.4	30.5	68	62	75-125	12	20	M1



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### **QUALITY CONTROL DATA**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

QC Batch:

MPRP/34956

Analysis Method:

**ASTM D2974** 

QC Batch Method:

**ASTM D2974** 

Analysis Description:

Dry Weight/Percent Moisture

Associated Lab Samples: 60127664002, 60127664003

%

SAMPLE DUPLICATE: 1278857

Parameter

Parameter

10203942001

Result

Dup Result Max **RPD** 

Max

**RPD** 

Qualifiers

Percent Moisture

Percent Moisture

Units %

Units

89.3

89.3

.05

**RPD** 

30

30

SAMPLE DUPLICATE: 1278858

10204054001 Result 19.2

Dup Result 18.8

RPD 2 Qualifiers



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#### **QUALITY CONTROL DATA**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

QC Batch:

PMST/7673

Analysis Method:

**ASTM D2974** 

QC Batch Method:

**ASTM D2974** 

Analysis Description:

Dry Weight/Percent Moisture

Associated Lab Samples:

60127664001, 60127664004, 60127664005, 60127664006, 60127664007, 60127664008, 60127664009,

60127664010

METHOD BLANK: 1055547

Parameter

Matrix: Solid

Associated Lab Samples:

60127664001, 60127664004, 60127664005, 60127664006, 60127664007, 60127664008, 60127664009,

60127664010

Blank Result Reporting Limit

Analyzed

Qualifiers

Percent Moisture

%

%

Units

Units

ND

09/06/12 00:00

SAMPLE DUPLICATE: 1055548

60127847004

Dup Result

Max RPD

Qualifiers

Parameter Percent Moisture

Result

83.4

83.7

RPD

0

20





### **QUALITY CONTROL DATA**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

QC Batch:

WET/10056

Analysis Method:

EPA 7196A

QC Batch Method:

EPA 7196A

Analysis Description:

7196 Chromium, Hexavalent

Associated Lab Samples:

60127664008, 60127664009, 60127664010

METHOD BLANK: 797212

Matrix: Solid

Associated Lab Samples:

60127664001, 60127664002, 60127664003, 60127664004, 60127664005, 60127664006, 60127664007,

60127664008, 60127664009, 60127664010

Blank

Reporting

Parameter

Parameter

Units

Units

60127664001

Result

ND

Result

Limit

Qualifiers

Chromium, Hexavalent

mg/kg

ND

09/14/12 09:40

Analyzed

LABORATORY CONTROL SAMPLE:

Spike

LCS Result

LCS % Rec

% Rec Limits

Qualifiers

Chromium, Hexavalent

mg/kg

Conc. 1020

830

797215

MS

Result

868

81

80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

797214

MS MSD

MS

MSD

% Rec Limits

75-125

Max

Chromium, Hexavalent

mg/kg

Spike Conc.

Spike Conc.

1050

MSD Result

842

% Rec 77 % Rec 80 **RPD** 3

RPD Qual 20

SAMPLE DUPLICATE:

Parameter

Parameter

Units

Units

60127609006 Result

1120

Dup Result **RPD** 

Max RPD

Qualifiers

Chromium, Hexavalent

mg/kg

ND

ND

20





### **QUALITY CONTROL DATA**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

QC Batch:

WETA/21519

Analysis Method:

EPA 9056

QC Batch Method:

EPA 9056

Analysis Description:

9056 IC Anions

Associated Lab Samples:

60127664001, 60127664002, 60127664003, 60127664004, 60127664005, 60127664006, 60127664007,

60127664008, 60127664009, 60127664010

METHOD BLANK: 1055038

Matrix: Solid

Associated Lab Samples:

60127664004, 60127664005, 60127664006, 60127664007, 60127664008, 60127664009, 60127664010

Blank

Reporting

Parameter

Units

Result

Limit

Analyzed Qualifiers

Chloride

mg/kg

ND

100 09/05/12 15:31

METHOD BLANK: 1055583

Matrix: Solid

Associated Lab Samples:

60127664001, 60127664002, 60127664003

Blank

Reporting

Parameter

Units

Result

Limit Analyzed Qualifiers

mg/kg

ND

100 09/06/12 09:20

97

97

LABORATORY CONTROL SAMPLE:

1055039

Units

Units

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Chloride

Chloride

mg/kg

500

500

486

80-120

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

Parameter

1055584

Spike Conc.

MS

Spike

Conc.

525

LCS Result LCS

% Rec

Chloride

mg/kg

Units

mg/kg

MSD

Spike

Conc.

% Rec

Limits

80-120

Qualifiers

1055040

Result

60127664001

Units

mg/kg

1055041

MS

Result

485

MSD

MS

MSD % Rec

15

Max Qual

Chloride

123

127

525 631

% Rec Result 618

% Rec 96 93 Limits RPD 80-120

RPD 2 15

SAMPLE DUPLICATE:

1055042

60127664002 Result

Dup Result

138

**RPD** 

Max **RPD** 

Qualifiers

Chloride

Date: 09/20/2012 04:54 PM

Parameter

REPORT OF LABORATORY ANALYSIS

Page 21 of 24

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#### **QUALIFIERS**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

#### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

#### **LABORATORIES**

PASI-I Pace Analytical Services - Indianapolis
PASI-K Pace Analytical Services - Kansas City
PASI-M Pace Analytical Services - Minneapolis

#### **ANALYTE QUALIFIERS**

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.





### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60127664001	31/32A	EPA 3050	MPRP/19286	EPA 6010	ICP/15956
60127664002	33/34A	EPA 3050	MPRP/19286	EPA 6010	ICP/15956
60127664003	35/36A	EPA 3050	MPRP/19286	EPA 6010	ICP/15956
0127664004	41/42A	EPA 3050	MPRP/19286	EPA 6010	ICP/15956
0127664005	43/44A	EPA 3050	MPRP/19286	EPA 6010	ICP/15956
0127664006	49/50A	EPA 3050	MPRP/19286	EPA 6010	ICP/15956
0127664007	51/52A	EPA 3050	MPRP/19286	EPA 6010	ICP/15956
0127664008	53/54A	EPA 3050	MPRP/19286	EPA 6010	ICP/15956
0127664009	55/56A	EPA 3050	MPRP/19286	EPA 6010	ICP/15956
0127664010	57/58A	EPA 3050	MPRP/19286	EPA 6010	ICP/15956
0127664001	31/32A	EPA 7471	MERP/6586	EPA 7471	MERC/6551
0127664002	33/34A	EPA 7471	MERP/6586	EPA 7471	MERC/6551
0127664003	35/36A	EPA 7471	MERP/6586	EPA 7471	MERC/6551
0127664004	41/42A	EPA 7471	MERP/6586	EPA 7471	MERC/655
0127664005	43/44A	EPA 7471	MERP/6586	EPA 7471	MERC/655
0127664006	49/50A	EPA 7471	MERP/6586	EPA 7471	MERC/655
0127664007	51/52A	EPA 7471	MERP/6586	EPA 7471	MERC/655
0127664008	53/54A	EPA 7471	MERP/6586	EPA 7471	MERC/655
0127664009	55/56A	EPA 7471	MERP/6586	EPA 7471	MERC/6551
0127664010	57/58A	EPA 7471	MERP/6586	EPA 7471	MERC/6551
0127664002	33/34A	ASTM D2974	MPRP/34956		
0127664003	35/36A	ASTM D2974	MPRP/34956		
0127664001	31/32A	ASTM D2974	PMST/7673		
0127664004	41/42A	ASTM D2974	PMST/7673		
0127664005	43/44A	ASTM D2974	PMST/7673		
0127664006	49/50A	ASTM D2974	PMST/7673		
0127664007	51/52A	ASTM D2974	PMST/7673		
0127664008	53/54A	ASTM D2974	PMST/7673		
0127664009	55/56A	ASTM D2974	PMST/7673		
0127664010	57/58A	ASTM D2974	PMST/7673		
0127664001	31/32A	EPA 7196A	WET/10056	EPA 7196A	WET/10071
0127664002	33/34A	EPA 7196A	WET/10056	EPA 7196A	WET/10071
0127664003	35/36A	EPA 7196A	WET/10056	EPA 7196A	WET/10071
0127664004	41/42A	EPA 7196A	WET/10056	EPA 7196A	WET/10071
0127664005	43/44A	EPA 7196A	WET/10056	EPA 7196A	WET/10071
0127664006	49/50A	EPA 7196A	WET/10056	EPA 7196A	WET/10071
0127664007	51/52A	EPA 7196A	WET/10056	EPA 7196A	WET/10071
0127664008	53/54A	EPA 7196A	WET/10056	EPA 7196A	WET/10071
0127664009	55/56A	EPA 7196A	WET/10056	EPA 7196A	WET/10071
0127664010	57/58A	EPA 7196A	WET/10056	EPA 7196A	WET/10071
0127664001	31/32A	EPA 9056	WETA/21519	EPA 9056	WETA/2152
0127664002	33/34A	EPA 9056	WETA/21519		WETA/2152
0127664003	35/36A	EPA 9056	WETA/21519	EPA 9056	WETA/2152
0127664004	41/42A	EPA 9056	WETA/21519	EPA 9056	WETA/2152
0127664005	43/44A	EPA 9056	WETA/21519	EPA 9056	WETA/2152
0127664006	49/50A	EPA 9056	WETA/21519	EDA OOSS	WETA/2152

Date: 09/20/2012 04:54 PM

## **REPORT OF LABORATORY ANALYSIS**

Page 23 of 24

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### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project:

REL1-11-11 B-3

Pace Project No.:

60127664

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60127664007	51/52A	EPA 9056	WETA/21519	EPA 9056	WETA/21520
60127664008	53/54A	EPA 9056	WETA/21519	EPA 9056	WETA/21520
60127664009	55/56A	EPA 9056	WETA/21519	EPA 9056	WETA/21520
60127664010	57/58A	EPA 9056	WETA/21519	EPA 9056	WETA/21520



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414

Phone: 612.607.1700 Fax: 612.607.6444

## Report Prepared for:

Sherri Rosenstangle **PASI Kansas** 9608 Loiret Blvd. Lenexa KS 66219

> **REPORT OF LABORATORY** ANALYSIS FOR PCDD/PCDF

## **Report Information:**

Pace Project #: 10203966

Sample Receipt Date: 08/30/2012

**Client Project #: 60127664** 

Client Sub PO #: N/A

State Cert #: N/A

## **Invoicing & Reporting Options:**

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Norman Hoffa, your Pace Project Manager.

Yoman C. Hoffe

This report has been reviewed by:

September 17, 2012

Norman Hoffa, Project Manager

(919) 596-1935

(612) 607-6444 (fax)

norm.hoffa@pacelabs.com



## Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

**Report Prepared Date:** 

September 17, 2012



Pace Analytical Services, Inc.

1700 Elm Street Minneapolis, MN 55414

Phone: 612.607.1700 Fax: 612.607.6444

## **DISCUSSION**

This report presents the results from the analyses performed on ten samples submitted by a representative of Pace Analytical Services, Inc. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzo-furans (PCDFs) using USEPA Method 1613B. Sample preparation utilized microwave assisted extraction followed by the method-specified cleanup procedures. The reporting limits were set to correspond to the lowest calibration points and were adjusted for sample amount.

Second column confirmation analyses of 2,3,7,8-TCDF values obtained from the primary (DB5-MS) column are performed only when specifically requested for a project and only when the values are above the concentration of the lowest calibration standard. Typical resolution for this isomer using the DB5-MS column ranges from 25-30%.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 27-92%. All of the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1613B. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to be free of PCDDs and PCDFs at the reporting limits.

A laboratory spike sample was also prepared with the sample batch using clean sand that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 85-108%, indicating a high degree of accuracy for these determinations. Matrix spikes were prepared with the sample batch using sample material from a separate project; results from these analyses will be provided upon request.



Tel: 612-607-1700 Fax: 612- 607-6444

## Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Montana	92
Alaska	MN00064	Nebraska	
Arizona	AZ0014	Nevada	MN_00064_200
Arkansas	88-0680	New Jersey (NE	MN002
California	01155CA	New Mexico	MN00064
Colorado	MN00064	New York (NEL	11647
Connecticut	PH-0256	North Carolina	27700
EPA Region 5	WD-15J	North Dakota	R-036
EPA Region 8	8TMS-Q	Ohio	4150
Florida (NELAP	E87605	Ohio VAP	CL101 9507
Georgia (DNR)	959	Oklahoma	D9922
Guam	959	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN300001-001
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana	C-MN-01	South Carolina	74003001
Indiana	C-MN-01	Tennesee	2818
Iowa	368	Tennessee	02818
Kansas	E-10167	Texas	T104704192-08
Kentucky	90062	Utah (NELAP)	PAM
Louisiana	03086 ·	Virginia	00251
Maine	2007029	Washington	C755
Maryland	322	West Virginia	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-Q
Mississippi	MN00064		

## **REPORT OF LABORATORY ANALYSIS**

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# Appendix A

Sample Management

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:			Norkorder Name:REL1-11-11 B-3				Owner Received Date: 8/24/2012 Results Requested By: 9/											
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### Document Name:

### Sample Condition Upon Receipt Form

Document No.: F-MN-L-213-rev.04 Document Revised: 22Aug2012

Page 1 of 1

Issuing Authority:
Pace Minnesota Quality Office

Sample Condition Upon Receipt  Client Name:			Project #	WO#: 10203966
Courier: Fed Ex UPS  Commercial Pace	USPS Other:		lient .	10203966
Tracking Number: <u>\$3.56</u> 423/ 9	1126			
Custody Seal on Cooler/Box Present?	No	Seals Ir	ntact?	Yes No Optional: Proj. Due Date: Proj. Name:
Packing Material: Bubble Wrap	gs 🔲 N	one [	]Other:_	Temp Blank? ☐ Yes ☐ No
Thermometer Used:     B888A912167504   R80512447	Type of	Ice: 🕅	Wet [	Blue None Samples on ice, cooling process has begun
Cooler Temperature: 20 Biological Tissue Fro	zen?	Yes 🔲	No Da	te and initials of Person Examining Contents: $8281271$
Temp should be above freezing to 6°C		, c.,	,,,,	
				Comments:
Chain of Custody Present?	N/Es	□No	□N/A	1.
Chain of Custody Filled Out?	Yes	□No	□N/A	2.
Chain of Custody Relinquished?	Yes	□No	□n/a	- 3.
Sampler Name and/or Signature on COC?	□Yes	Ż₩0	□N/A	4.
Samples Arrived within Hold Time?	Yes	□No	□N/A	5.
Short Hold Time Analysis (<72 hr)?	Yes	<b>∑</b> Mo	□N/A	6.
Rush Turn Around Time Requested?	Yes	No	□N/A	7.
Sufficient Volume?	<b>∑</b> Yes	□No	□N/A	8.
Correct Containers Used?	Yes	□No	□N/A	9.
-Pace Containers Used?	Ves	□No	□n/a	
Containers Intact?	Ves	□No	□n/a_	10.
Filtered Volume Received for Dissolved Tests?	☐Yes	□No	<b>™</b> N/A	11.
Sample Labels Match COC?	Yes	ΜÑο	□N/A	12. received 3 containers for items 1, 2 and
-Includes Date/Time/ID/Analysis Matrix: \$4		, -		3 and one container for 10. did not rec
All containers needing acid/base preservation have	□Yes	□No	MN/A	13. ☐HNO₃ ☐H₂SO₄ ☐NaOH ☐HCI
been checked? Noncompliances are noted in 13.  All containers needing preservation are found to be in				Sample #
compliance with EPA recommendation?	□Yes	□No	DN/A	James "
(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>12) Exceptions: VOA, Coliform, TOC, Oll and Grease,	_	÷	,	Lot # of added
WI-DRO (water)	☐Yes	₩ <sub>0</sub>		Initial when completed: preservative:
Headspace in VOA Vials ( >6mm)?	Yes	. 🔲 No	'EN/A	14.
Trip Blank Present?	Yes	□No	[5]N/A	15.
Trip Blank Custody Seals Present?	Yes	□No	<b>I</b> S <b>M</b> 7A	•
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Pace Pkg., Page 30 of 80 Page 6 of 24

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5	43/44A	8/17/2012 00:00	60127664005	Solid	1				X														
6	49/50A	8/17/2012 00:00	60127664006	Solid	1				X		1.						•						
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### Document Name: Sample Condition Upon Receipt Form

Document No.: F-MN-L-213-rev.04

Document Revised: 22Aug2012 Page 1 of 1

Issuing Authority:
Pace Minnesota Quality Office

	Sample Condition Upon Receipt  O  O  O  O  O  O  O  O  O  O  O  O  O			Project #	
_	HNA-LAS	7			
	Courier: ☐Fed Ex ☐UPS ☐ ☐Commercial ☐Pace Д	USPS Other:	-	lient	:
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	Custody Seal on Cooler/Box Present? Yes	o	Seals In	tact?	Yes No Optional: Proj. Due Date: Proj. Name:
	Packing Material: Bubble Wrap Bubble Bags	□N	one 🗀	]Other:	Temp Blank? Yes No
T	Thermometer Used:   B88A912167504.	Type of	Ice: 🏋	Wet [	Blue None Samples on ice, cooling process has begun
	Cooler Temperature: $2 \int_{\Gamma} S$ Biological Tissue Froze emp should be above freezing to 6°C	en? 🔲	Yes 🔲	No <b>Da</b>	te and Initials of Person Examining Contents: 8-30-12 74
	· · ·			·	Comments:
	Chain of Custody Present?	Yes	□No	□N/A	1.
	Chain of Custody Filled Out?	Yes	□No	□N/A	2.
	Chain of Custody Relinquished?	Xives	□No	□N/A	3.
	Sampler Name and/or Signature on COC?	Yes	XINo	□N/A	4 ·
	Samples Arrived within Hold Time?	Yes	□No	□N/A	5.
	Short Hold Time Analysis (<72 hr)?	Yes	ZŽV0	□N/A	6.
	Rush Turn Around Time Requested?	Yes	XÍNo.	□N/A	7.
	Sufficient Volume?	Yes	∐No	□N/A	8.
•	Correct Containers Used?	Yes	□No	□N/A	9.
	-Pace Containers Used?	⊠γes	· □No	□N/A	
	Containers Intact?	Yes	□No	□N/A	10.
	Filtered Volume Received for Dissolved Tests?	∐Yes	□No	DAN/A	11.
	Sample Labels Match COC?	∐Yes ·	No	□N/A	12. ONLY FEC & SAMPLES DO 4,005,000
	-Includes Date/Time/ID/Analysis Matrix:SC		~		
	All containers needing acid/base preservation have	Yes	□No	Ď <b>√</b> N/A	13. □HNO₃ □H₂SO₄ □NaOH □HCI
	been checked? Noncompliances are noted in 13.  All containers needing preservation are found to be in	L103		7'''	Sample #
•	compliance with EPA recommendation?	∐Yeş	□No	M/A	· Sample #
	(HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>12)			7	
٠	Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes	□No		Lot # of added Initial when completed: preservative:
	Headspace in VOA Vials ( >6mm)?	∐Yes	□No	'NIN/A	14.
	Trip Blank Present?	Yes	□No	TXV/A	15.
	Trip Blank Custody Seals Present?	Yes	□No	ØN/A	
	Pace Trip Blank Lot # (if purchased):				<u> </u>
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	Comments/Resolution:				
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			igned by Norman		
	Project Manager Review: Norman Hoff	d ou=Project	orman Hoffa, o=P. :t Manager, rm.hoffa@pacelab 2.08.31 12:02:02 -0	ace Analytical Sen s.com, c=US 04'00'	kes Inc. Date:

Project Manager Review: Date:

Report No. Pls send highlighted samples to - face MN Workorder Name: REL1-11-11 B-3 Owner Received Date: 8/24/2012 Results Requested By: 9/17/2012 Workorder: 60127664 Kapares and the same and the same and the same and the same and the same and the same and the same and the same Sherri Rosenstangle Pace Analytical Indianapolis Pace Analytical Services, Inc. 7726 Moller Road 9608 Loiret Blvd. Indianapolis, IN 46268 Lenexa, KS 66219 Phone (317)875-5894 Phone (913)599-5665 FUMMS Fax (913)599-1759 13B none ф LAB USE ONLY 8/17/2012 00:00 60127664001 31/32A Solid 1 33/34A PS 8/17/2012 00:00 60127664002 Solid PS 8/17/2012 00:00 60127664003 Solid 35/36A 1 PS 8/17/2012 00:00 60127664004 1 41/42A Solid 5 43/44A PS 8/17/2012 00:00 60127664005 Solid 1 6 PS 1 49/50A 8/17/2012 00:00 60127664006 Solid 51/52A PS 8/17/2012 00:00 60127664007 Solid 53/54A PS 8/17/2012 00:00 60127664008 Solid PS 60127664009 55/56A 8/17/2012 00:00 Solid 1 8/17/2012 00:00 60127664010 57/58A Released By Date/Time Received By Date/Time Transfers ugun Cooler Temperature on Receipt 5.5 °C Custody Seal Received on Ice Yor Samples Intact Y or 535642318115

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Commercial Pace	Other:_						
Tracking Number: 26645700	14916	<del></del>			<u> </u>		
Custody Seal on Cooler/Box Present?	□No	Seals Intact? [	Žves □N	Optional:	Proj. Due Date	e: Proj. N	lame:
Packing Material: Bubble Wrap ZBubbl	le Bags \No	ne			Temp Blank?	Zyes	□No
Thermometer Used: [2] 888A912167504 [380512	447 Type of le	ce:	∐Blue ∐N	lone 🗀San	nples on ice, coo	ling nrocess	has begu
	•				_	/ 5/ <i>(</i> )	Tida Degui
Cooler Temperature: 0.5 Biological Tissu	e Frozen?	'es □No <b>D</b> a	ite and initials	of Person Exam	ining Contents:	<u> </u>	) <u>'SU-</u>
Temp should be above freezing to 6°C	,				Comments:		
Chain of Custody Present?	[ÚXES	□No □N/A	1.		dominency.	<del></del>	
Chain of Custody Filled Out?	- Dyes	. □No □N/A	2.	·-···		<del></del>	
Chain of Custody Relinquished?	· Zves		3.		•		
				<u> </u>		<del></del>	
Sampler Name and/or Signature on COC?	Yes	Zł√6 □N/A	4.			•	
Samples Arrived within Hold Time?		□No □N/A	5.	·······	·		
Short Hold Time Analysis (<72 hr)?	Yes		6.	·			
Rush Turn Around Time Requested?	Yes	ZMO UN/A	7.		<u> </u>		
Sufficient Volume?	□ Xes	□No □N/A	8.				
Correct Containers Used?	[2] Yes	. □Nº □N\∀	9.				
-Pace Containers Used?	[]Yes	□Ño □N/A	ļ		· · · · · · · · · · · · · · · · · · ·	<del></del>	
Containers Intact?	∐ Yes	□No □N/A	10.				
Filtered Volume Received for Dissolved Tests?	Yes	□No CANTA	<u> </u>				
Sample Labels Match COC?	, PYes	□No 、□N/A	12.				
-Includes Date/Time/ID/Analysis Matrix:	<u> </u>		<u> </u>				
All containers needing acid/base preservation have	□Yes	□No □	13.	□HNO₃	∐H₂SO₄	NaOH	. HCI
been checked? Noncompliances are noted in 13. All containers needing preservation are found to be			Sample #			<b>4</b>	
compliance with EPA recommendation?	∐Yes	□No ØMA	1				
(HNO₃, H₂SO₄, HCI<2; NaOH>12) Exceptions: VOA, Coliform, TOC, Oil and Grease,				•		د_د.	
WI-DRO (water)	∐Yes	(1)NO	Initial when	completed:	Lot # of a preserval		-
Headspace in VOA Vials ( >6mm)?	∐Yes	□No □MA	14.				
Trip Blank Present?	Yes	□No □MA					
Trip Blank Custody Seals Present?	Yes	□No ŒNA	-1	:			
Pace Trip Blank Lot # (if purchased):	<u></u>						
CULTATE NOTIFICATION (COOK)							
CLIENT NOTIFICATION/RESOLUTION			D	Field Da	ata Required?	YesN	0
Person Contacted:			Date/Time:				

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Comments/Resolution:

# **Reporting Flags**

- A = Reporting Limit based on signal to noise
- B = Less than 10x higher than method blank level
- C = Result obtained from confirmation analysis
- D = Result obtained from analysis of diluted sample
- E = Exceeds calibration range
- I = Interference present
- J = Estimated value
- Nn = Value obtained from additional analysis
- P = PCDE Interference
- R = Recovery outside target range
- S = Peak saturated
- U = Analyte not detected
- V = Result verified by confirmation analysis
- X = %D Exceeds limits
- Y = Calculated using average of daily RFs
- \* = See Discussion

# Appendix B

Sample Analysis Summary



### Method 1613B Sample Analysis Results

Client - PASI Kansas

Client's Sample ID 31/32A Lab Sample ID 60127664001 Filename U120913A 03 Injected By SMT **Total Amount Extracted** 5.30 g Matrix Solid Dilution NA % Moisture 4.8 Dry Weight Extracted 5.05 g Collected 08/17/2012 08/30/2012 10:05 ICAL ID U120910 Received U120912B 17 Extracted 09/10/2012 17:00 CCal Filename(s) BLANK-33852 09/13/2012 11:31 Method Blank ID Analyzed

Native Isomers	Conc ng/Kg	EMPC ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		2.0 2.0	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	49 58 62
2,3,7,8-TCDD Total TCDD	ND ND		2.0 2.0	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00	66 73 52
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		9.9 9.9 9.9	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C	2.00 2.00 2.00	57 58 62
1,2,3,7,8-PeCDD Total PeCDD	ND ND		9.9 9.9	1,2,3,4,7,8-HxCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	56 52 45 57
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	ND ND ND ND		9.9 9.9 9.9 9.9	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.00 4.00 2.00	53 43 NA
Total HxCDF  1,2,3,4,7,8-HxCDD  1,2,3,6,7,8-HxCDD  1,2,3,7,8,9-HxCDD  Total HxCDD	ND ND ND ND ND		9.9 9.9 9.9 9.9 9.9	1,2,3,7,8,9-HxCDD-13C 2,3,7,8-TCDD-37Cl4	2.00 0.20	NA 67
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND ND		9.9 9.9 9.9	Total 2,3,7,8-TCDD Equivalence: 13 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	33 72		9.9 9.9			
OCDF OCDD	ND 13000		20.0 20.0			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

ND = Not Detected NA = Not Applicable

EMPC = Estimated Maximum Possible Concentration RL = Reporting Limit.

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### Method 1613B Sample Analysis Results

Client - PASI Kansas

Client's Sample ID Lab Sample ID Filename Injected By Total Amount Extracte

Total Amount Extracted
% Moisture
Dry Weight Extracted
ICAL ID
CCal Filename(s)

Method Blank ID

33/34A 60127664002 U120913A\_05 SMT

10.3 g 0.9 10.2 g U120910 U120912B\_17 BLANK-33852 Matrix Dilution Collected Received

Extracted

Analyzed

Solid NA 08/17/2012 08/30/2012

08/30/2012 10:05 09/10/2012 17:00 09/13/2012 13:07

Native Isomers	<b>Conc</b> ng/Kg	EMPC ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND	***************************************	0.98 0.98	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	49 60 63
2,3,7,8-TCDD Total TCDD	ND ND		0.98 0.98	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00	65 75 54
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		4.90 4.90 4.90	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00	59 58 62 60
1,2,3,7,8-PeCDD Total PeCDD	ND ND		4.90 4.90	1,2,3,4,7,6-HXCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	54 49 59
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND ND		4.90 4.90 4.90 4.90	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.00 4.00 2.00	57 45 NA
1,2,3,7,8,9-HxCDF Total HxCDF	ND		4.90	1,2,3,4-1CDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		4.90 4.90 4.90 4.90	2,3,7,8-TCDD-37Cl4	0.20	65
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND ND		4.90 4.90 4.90	Total 2,3,7,8-TCDD Equivalence: 2.4 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	9.6 20.0		4.90 4.90			
OCDF OCDD	ND 2300.0		9.80 9.80			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers). EMPC = Estimated Maximum Possible Concentration ND = Not Detected NA = Not Applicable NC = Not Calculated

RL = Reporting Limit.

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### Method 1613B Sample Analysis Results

Client - PASI Kansas

Client's Sample ID 35/36A
Lab Sample ID 60127664003
Filename U120915A\_03
Injected By BAL
Total Amount Extracted 5.00 g
% Moisture 1.4
Dry Weight Extracted 4.93 g

ICAL ID U120910 CCal Filename(s) U120914B\_10 Method Blank ID BLANK-33852 Matrix Solid
Dilution NA
Collected 08/17

Received

Extracted

Analyzed

NA 08/17/2012 08/30/2012 10:05

09/10/2012 17:00 09/15/2012 15:17

Native Isomers	Conc ng/Kg	EMPC ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		2.0 2.0	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	53 58 58
2,3,7,8-TCDD Total TCDD	ND ND		2.0 2.0	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	59 62 60
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND	*****	10.0 10.0 10.0	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	62 63 69 60
1,2,3,7,8-PeCDD Total PeCDD	ND ND		10.0 10.0	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	55 51 63
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF Total HxCDF	ND ND ND ND ND		10.0 10.0 10.0 10.0 10.0	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C 1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00 4.00 2.00 2.00	52 47 NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		10.0 10.0 10.0 10.0	2,3,7,8-TCDD-37Cl4	0.20	65
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND ND		10.0 10.0 10.0	Total 2,3,7,8-TCDD Equivalence: 5.3 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	35 74		10.0 10.0			
OCDF OCDD	ND 4900		20.0 20.0			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers). EMPC = Estimated Maximum Possible Concentration ND = Not Detected NA = Not Applicable

RL = Reporting Limit.

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### Method 1613B Sample Analysis Results

Client - PASI Kansas

Client's Sample ID 41/42A Lab Sample ID 60127664004 Filename U120913A 07 Injected By SMT **Total Amount Extracted** 10.8 g % Moisture 5.0 Dry Weight Extracted

10.3 g ICÁL ID U120910 CCal Filename(s) U120912B 17 Method Blank ID BLANK-33852

Solid Matrix Dilution NA Collected

08/17/2012 08/30/2012 10:05

Received Extracted 09/10/2012 17:00 Analyzed 09/13/2012 14:43

Native Isomers	Conc ng/Kg	EMPC ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	15.0 53.0		0.97 0.97	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	52 59 57
2,3,7,8-TCDD Total TCDD	ND 2.1	*******	0.97 0.97	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	55 64 47
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	13.0 9.8 34.0		4.90 4.90 4.90	1,2,3,4,7,8-HxCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	49 49 50 51
1,2,3,7,8-PeCDD Total PeCDD	ND ND		4.90 4.90	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	45 41 46
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	23.0 9.2 ND 5.6		4.90 4.90 4.90 4.90	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.00 2.00 4.00	48 36 NA
Total HxCDF	49.0		4.90	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND 22.0		4.90 4.90 4.90 4.90	2,3,7,8-TCDD-37Cl4	0.20	84
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	24.0 13.0 52.0		4.90 4.90 4.90	Total 2,3,7,8-TCDD Equivalence: 17 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	72.0 150.0		4.90 4.90			
OCDF OCDD	55.0 5100.0		9.70 9.70			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers). EMPC = Estimated Maximum Possible Concentration

ND = Not Detected NA = Not Applicable

RL = Reporting Limit.

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### Method 1613B Sample Analysis Results

Client - PASI Kansas

Client's Sample ID Lab Sample İD Filename Injected By

**Total Amount Extracted** % Moisture Dry Weight Extracted ICÁL ID

CCal Filename(s) Method Blank ID

43/44A 60127664005 U120913A 08 SMT

11.2 g 2.7 10.9 g

U120910 U120912B\_17 BLANK-33852 Matrix Dilution

Solid NA 08/17/2012

Collected Received Extracted Analyzed 09/13/2012 15:35

08/30/2012 10:05 09/10/2012 17:00

Native Isomers	Conc ng/Kg	EMPC ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	4.0 7.2		0.92 0.92	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	46 53 53
2,3,7,8-TCDD Total TCDD	ND ND		0.92 0.92	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	55 64 45
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		4.60 4.60 4.60	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	47 46 48 48
1,2,3,7,8-PeCDD Total PeCDD	ND ND		4.60 4.60	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	43 41 44
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	7.4 ND ND ND		4.60 4.60 4.60 4.60	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.00 2.00 4.00	46 36 NA
Total HxCDF	13.0		4.60	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND 10.0		4.60 4.60 4.60 4.60	2,3,7,8-TCDD-37Cl4	0.20	75
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	9.2 ND 17.0		4.60 4.60 4.60	Total 2,3,7,8-TCDD Equivalence: 3.0 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	35.0 74.0		4.60 4.60			
OCDF OCDD	20.0 1400.0		9.20 9.20			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers). EMPC = Estimated Maximum Possible Concentration

ND = Not Detected NA = Not Applicable

RL = Reporting Limit.

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### Method 1613B Sample Analysis Results

Client - PASI Kansas

Client's Sample ID Lab Sample ID Filename Injected By

Total Amount Extracted 10.4 g % Moisture Dry Weight Extracted

ICÁL ID CCal Filename(s) Method Blank ID

49/50A 60127664006 U120913A 09 SMT

4.4 9.94 g U120910 U120912B 17 BLANK-33852 Matrix Dilution Collected

Solid NA 08/17/2012

Received 08/30/2012 10:05 Extracted 09/10/2012 17:00 Analyzed 09/13/2012 16:21

Native Isomers	Conc ng/Kg	EMPC ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	1.9 3.2		1.0 1.0	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	30 39 44
2,3,7,8-TCDD Total TCDD	ND ND		1.0 1.0	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	45 53 41
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		5.0 5.0 5.0	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	43 42 44 43
1,2,3,7,8-PeCDD Total PeCDD	ND ND		5.0 5.0	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	39 38 43
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	ND ND ND ND		5.0 5.0 5.0 5.0	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.00 4.00 2.00	43 34 NA
Total HxCDF	ND		5.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		5.0 5.0 5.0 5.0	2,3,7,8-TCDD-37Cl4	0.20	60
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND ND		5.0 5.0 5.0	Total 2,3,7,8-TCDD Equivalence: 0.93 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	16.0 34.0		5.0 5.0			
OCDF OCDD	ND 580.0	<del></del>	10.0 10.0			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers). EMPC = Estimated Maximum Possible Concentration

ND = Not Detected NA = Not Applicable

RL = Reporting Limit.

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### Method 1613B Sample Analysis Results

Client - PASI Kansas

51/52A Client's Sample ID Lab Sample ID 60127664007 Filename U120913A 10 Injected By SMT Matrix Solid 5.50 g **Total Amount Extracted** NA Dilution % Moisture 3.4 Collected 08/17/2012 Dry Weight Extracted 5.31 g U120910 Received 08/30/2012 10:05 ICÁL ID 09/10/2012 17:00 CCal Filename(s) U120912B 17 Extracted 09/13/2012 17:09 Method Blank ID BLANK-33852 Analyzed

Native Isomers	Conc ng/Kg	<b>EMPC</b> ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	2.0 2.0		1.9 1.9	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	53 59 56
2,3,7,8-TCDD Total TCDD	ND ND		1.9 1.9	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00	58 63 42
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		9.4 9.4 9.4	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C	2.00 2.00 2.00 2.00 2.00	44 42 50 44
1,2,3,7,8-PeCDD Total PeCDD	ND ND		9.4 9.4	1,2,3,4,7,8-HxCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	38 31 40
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF Total HxCDF	ND ND ND ND ND		9.4 9.4 9.4 9.4 9.4	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 4.00 2.00 2.00	38 27 NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		9.4 9.4 9.4 9.4	2,3,7,8-TCDD-37Cl4	0.20	74
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND ND		9.4 9.4 9.4	Total 2,3,7,8-TCDD Equivalence: 16 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	43.0 100.0		9.4 9.4			
OCDF OCDD	ND 15000.0		19.0 19.0			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

ND = Not Detected NA = Not Applicable

EMPC = Estimated Maximum Possible Concentration RL = Reporting Limit.

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### Method 1613B Sample Analysis Results

Client - PASI Kansas

Client's Sample ID 53/54A Lab Sample İD 60127664008 Filename U120913A\_11 Injected By SMT 2.00 g **Total Amount Extracted** % Moisture 2.3

Dry Weight Extracted 1.95 g U120910 ICAL ID CCal Filename(s) U120912B\_17 Method Blank ID BLANK-33852 Matrix Solid Dilution NA Collected

08/17/2012 Received 08/30/2012 10:05 Extracted 09/10/2012 17:00 Analyzed 09/13/2012 17:57

Native Isomers	Conc ng/Kg	EMPC ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	26 45		5.1 5.1	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	63 75 77
2,3,7,8-TCDD Total TCDD	ND ND		5.1 5.1	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	81 92 75
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		26.0 26.0 26.0	1,2,3,4,7,6-HXCDF-13C 1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	79 77 80 79
1,2,3,7,8-PeCDD Total PeCDD	ND ND	desirability and the second se	26.0 26.0	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	72 68 75
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF Total HxCDF	44 ND ND ND 44		26.0 26.0 26.0 26.0 26.0	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C 1,2,3,4-TCDD-13C	2.00 4.00 2.00 2.00 2.00	79 62 NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND	·	26.0 26.0 26.0 26.0	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	57 26 110		26.0 26.0 26.0	Total 2,3,7,8-TCDD Equivalence: 16 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	61 130		26.0 26.0			
OCDF OCDD	130 7000		51.0 51.0			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers). EMPC = Estimated Maximum Possible Concentration

ND = Not Detected NA = Not Applicable

RL = Reporting Limit.

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### Method 1613B Sample Analysis Results

Client - PASI Kansas

Client's Sample ID 55/56A
Lab Sample ID 60127664009
Filename U120913A\_12
Injected By SMT
Total Amount Extracted 5.20 g
% Moisture 3.9

 Dry Weight Extracted
 5.00 g

 ICAL ID
 U120910

 CCal Filename(s)
 U120912B\_17

 Method Blank ID
 BLANK-33852

Matrix Solid Dilution NA

Collected 08/17/2012 Received 08/30/2012 10:05 Extracted 09/10/2012 17:00 Analyzed 09/13/2012 18:45

Native Isomers	Conc ng/Kg	EMPC ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		2.0 2.0	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	45 53 60
2,3,7,8-TCDD Total TCDD	ND ND		2.0 2.0	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00 2.00	64 71 48
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		10.0 10.0 10.0	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	50 50 57 50
1,2,3,7,8-PeCDD Total PeCDD	ND ND		10.0 10.0	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	45 37 48
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	ND ND ND ND		10.0 10.0 10.0 10.0	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.00 4.00 2.00	44 32 NA
Total HxCDF  1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND ND		10.0 10.0 10.0 10.0 10.0	1,2,3,7,8,9-HxCDD-13C 2,3,7,8-TCDD-37Cl4	2.00 0.20	NA 59
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND ND		10.0 10.0 10.0	Total 2,3,7,8-TCDD Equivalence: 14 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	37 81		10.0 10.0			
OCDF OCDD	ND 14000		20.0 20.0			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers). EMPC = Estimated Maximum Possible Concentration ND = Not Detected NA = Not Applicable

RL = Reporting Limit.

NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### Method 1613B Sample Analysis Results

Client - PASI Kansas

Client's Sample ID Lab Sample ID Filename Injected By Total Amount Extracted

Injected By SMT
Total Amount Extracted 5.00 g
% Moisture 2.1
Dry Weight Extracted 4.89 g
ICAL ID U1209

CCal Filename(s)
Method Blank ID

57/58A 60127664010 U120913A\_13

5.00 g 2.1 4.89 g U120910 U120912B\_17 BLANK-33852

Matrix
Dilution
Collected
Received
Extracted

Analyzed

NA 08/17/2012 08/30/2012

Solid

08/30/2012 10:05 09/10/2012 17:00 09/13/2012 19:33

Native Isomers	Conc ng/Kg	EMPC ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	13 25		2.0 2.0	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	65 74 72
2,3,7,8-TCDD Total TCDD	ND ND		2.0 2.0	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00	74 84 62
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	10 ND 10		10.0 10.0 10.0	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00	65 64 66 64
1,2,3,7,8-PeCDD Total PeCDD	ND ND		10.0 10.0	1,2,3,4,7,6-HXCDD-13C 1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00 2.00	60 53 61
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF	17 ND ND ND		10.0 10.0 10.0 10.0	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C 1,2,3,4-TCDD-13C	2.00 4.00 2.00	60 45 NA
Total HxCDF	17		10.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		10.0 10.0 10.0 10.0	2,3,7,8-TCDD-37Cl4	0.20	86
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	18 ND 18		10.0 10.0 10.0	Total 2,3,7,8-TCDD Equivalence: 12 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	28 63		10.0 10.0			
OCDF OCDD	41 8100		20.0 20.0			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers). EMPC = Estimated Maximum Possible Concentration RL = Reporting Limit. ND = Not Detected NA = Not Applicable NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### Method 1613B Blank Analysis Results

Lab Sample ID Filename

Total Amount Extracted ICAL ID

CCal Filename(s)

BLANK-33852 U120912B\_09 10.3 g

U120910 U120912B\_01 Matrix Dilution Solid NA

Extracted Analyzed 09/10/2012 17:00 09/13/2012 02:36

Injected By SMT

Native Isomers	Conc ng/Kg	EMPC ng/Kg	<b>RL</b> ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF Total TCDF	ND ND		0.97 0.97	2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C	2.00 2.00 2.00	38 49 60
2,3,7,8-TCDD Total TCDD	ND ND		0.97 0.97	2,3,4,7,8-PeCDF-13C 1,2,3,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C	2.00 2.00 2.00	66 76 64
1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF Total PeCDF	ND ND ND		4.90 4.90 4.90	1,2,3,6,7,8-HxCDF-13C 2,3,4,6,7,8-HxCDF-13C 1,2,3,7,8,9-HxCDF-13C 1,2,3,4,7,8-HxCDD-13C	2.00 2.00 2.00 2.00 2.00	68 72 73 72
1,2,3,7,8-PeCDD Total PeCDD	ND ND		4.90 4.90	1,2,3,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,7,8,9-HpCDF-13C	2.00 2.00 2.00	65 64 75
1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	ND ND ND		4.90 4.90 4.90	1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	2.00 4.00	76 61
1,2,3,7,8,9-HxCDF Total HxCDF	ND ND		4.90 4.90	1,2,3,4-TCDD-13C 1,2,3,7,8,9-HxCDD-13C	2.00 2.00	NA NA
1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD Total HxCDD	ND ND ND ND		4.90 4.90 4.90 4.90	2,3,7,8-TCDD-37Cl4	0.20	49
1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF Total HpCDF	ND ND ND	 	4.90 4.90 4.90	Total 2,3,7,8-TCDD Equivalence: 0.00 ng/Kg (Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD Total HpCDD	ND ND		4.90 4.90			
OCDF OCDD	ND ND		9.70 9.70			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

RL = Reporting Limit

Results reported on a dry weight basis and are valid to no more than 2 significant figures.



### **Method 1613B Laboratory Control Spike Results**

Lab Sample ID Filename

**Total Amount Extracted** 

ICAL ID

CCal Filename Method Blank ID LCS-33853 U120912B\_04

10.1 g U120910

U120912B 01 **BLANK-33852**  Matrix Dilution

Solid NA

Extracted Analyzed

09/10/2012 17:00 09/12/2012 22:37

Injected By SMT

			Lower	Upper	%
Compound	Cs	Cr	Limit	Limit	Rec.
2,3,7,8-TCDF 2,3,7,8-TCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDD 1,2,3,4,7,8-PeCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,6,7,8-HpCDF	10 10 50 50 50 50 50 50 50 50 50	9.8 8.5 51 48 44 52 47 48 52 48 52 52 46 45	7.5 6.7 40.0 34.0 35.0 36.0 42.0 35.0 39.0 35.0 38.0 32.0 41.0 39.0 35.0	15.8 15.8 67.0 80.0 71.0 67.0 65.0 78.0 65.0 82.0 67.0 81.0 61.0 69.0 70.0	98 85 101 96 88 104 95 97 104 104 104 104 93
OCDF OCDD 2,3,7,8-TCDD-37Cl4 2,3,7,8-TCDF-13C 2,3,7,8-TCDD-13C 1,2,3,7,8-PeCDF-13C 2,3,4,7,8-PeCDF-13C 1,2,3,4,7,8-PeCDD-13C 1,2,3,4,7,8-HxCDF-13C 1,2,3,4,6,7,8-HxCDF-13C 1,2,3,4,6,7,8-HxCDF-13C 1,2,3,4,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HxCDD-13C 1,2,3,4,6,7,8-HyCDF-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,6,7,8-HpCDF-13C 1,2,3,4,6,7,8-HpCDD-13C OCDD-13C	100 100 100 100 100 100 100 100 100 100	110 100 6.1 46 58 64 68 78 61 68 71 71 71 71 71 72 69 63 61 75 73	33.0 78.0 3.1 22.0 20.0 21.0 13.0 21.0 21.0 22.0 17.0 21.0 25.0 21.0 26.0 26.0	170.0 144.0 19.1 152.0 175.0 192.0 328.0 227.0 202.0 159.0 176.0 205.0 193.0 163.0 186.0 166.0 397.0	108 101 61 46 58 64 68 78 61 68 71 71 69 63 61 75 73

Cs = Concentration Spiked (ng/mL)

Cr = Concentration Recovered (ng/mL)

Rec. = Recovery (Expressed as Percent)

Control Limit Reference: Method 1613, Table 6, 10/94 Revision

R = Recovery outside of control limits

Nn = Value obtained from additional analysis

<sup>\* =</sup> See Discussion

Integrity



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## **Table of Contents**

Report To

Sherri Rosenstangle Pace Analytical 9608 Loiret Blvd Lenexa, KS 66219

Account

PSR1

Project

582474

### Workorder#60127664 Workorder Name: REL1-11-11 B-3

This report consists of this Table of Contents and the following pages:

Report Name	<u>Description</u>	Pages
582474_r01_07_CoolerReview	Ana-Lab Project P:582474 Project Cooler Review Report	2
582474_r01_08_ProjectBottleReview	Ana-Lab Project P:582474 Project Bottle Review Report	7
582474_r02_01_ProjectSamples	Ana-Lab Project P:582474 C:PSR1 Project Sample Cross Reference	3
582474_r03_01_ProjectHold	Ana-Lab Project P:582474 C:PSR1 Project Holding Time Compliance	1
582474_r03_03_ProjectResults	Ana-Lab Project P:582474 C:PSR1 Project Results	7
582474_r10_05_ProjectQC	Ana-Lab Project P:582474 C:PSR1 Project Quality Control Groups	2
r99_09_CoC_5824741_of_1	Ana-Lab CoC PSR1 582474_1_of_1	7
	Total Pages:	29

Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662





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ooler Review

Printed 09/17/2012 Page 1 of 2

### Report To

Sherri Rosenstangle Pace Analytical 9608 Loiret Blvd Lenexa, KS 66219

**Project** 

1 3 3 8 8	164.20		
582	174	200	
UVA:			** ±
		14	

<u>Receipt</u>	<u>Cooler</u>	<u>Air Bill</u>	Date Recvd	<u>By</u>			
102364016	18586	pace fedex535642318104	08/28/2012	KAT Yes			
Was the cooler received intact and sealed. If no, notify client.     Was the cooler screened following the Radiochemistry survey procedure.							
	J	• • •		Yes			
	vey result negative. If	•		Yes			
•	•	by the client as radioactive.		No			
	e, did the client provi	•		N/A			
	f custody documents			Yes			
	er temperature checke			Yes			
	•	cifications (less than or equal to 6 C).		Yes			
•	e documented on the	•		Yes			
		es (testing capability, available personnel, and can meet	requested TAT). If no, notify client,	Yes			
	ttached (or Hand Del	ivered)		Yes			
9. Other Commo	ents			N/A			
1690537132 1. Was the coole	18603 er received intact and	PSR1-456914066671-FEDEX sealed. If no, notify client.	08/30/2012	CCP Yes			
2. Was the coole	er screened following	the Radiochemistry survey procedure.		Yes			
2a. Was the surv	vey result negative. If	no, notify the client.		Yes			
2b. Are any of the	he samples identified	by the client as radioactive.		No			
2c. If radioactive	e, did the client provi	de RAD Activity		N/A			
3. Were chain o	f custody documents	ncluded.		Yes			
4. Was the coole	er temperature checke	d.		Yes			
5. Was cooler to	mperature within spe	cifications (less than or equal to 6 C).		Yes			
6. Is temperature	e documented on the	Chain of Custody.		Yes			
7. Lab has reso	urces for these servic	es (testing capability, available personnel, and can meet	requested TAT). If no, notify client.	Yes			
8. Cooler Seal A	attached (or Hand Del	ivered)		Yes			
9. Other Comme	ents			N/A			
690537132 1. Was the coole	18604 er received intact and	PSR1-986953697821-FEDRX sealed. If no, notify client.	08/30/2012	CCP Yes			
2. Was the cooler screened following the Radiochemistry survey procedure.							
2a. Was the survey result negative. If no, notify the client.							
2h Are any of th	ne samples identified	by the client as radioactive.		No			

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Pace Pkg1,1 Rageof Cofe Race

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### Report Fo

Sherri Rosenstangle Pace Analytical 9608 Loiret Blvd Lenexa, KS 66219

Project



Receipt Cooler Air Bill 2c. If radioactive, did the client provide RAD Activity	<u>Date Recvd</u>	By N/A
3. Were chain of custody documents included.		Yes
4. Was the cooler temperature checked.		Yes
5. Was cooler temperature within specifications (less than or equal to 6 C).		Yes
6. Is temperature documented on the Chain of Custody.		Yes
7. Lab has resources for these services (testing capability, available personnel, and care	meet requested TAT). If no, notify client.	Yes
8. Cooler Seal Attached (or Hand Delivered)		Yes
9. Other Comments		N/A

N/R: Not Reviewed

N/A: Not Applicable

\* Out

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### Report To

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Project

Leceipt	Cooler		Air Bill	Received	Ву
8586	0102364	016	pace fedex535642318104	08/28/2012	KAT
Sample	Bottle	Barcode	Description		
1145498 1.Was the sa		00000001014	5 Client supplied glass		Yes
2. Was the pr	roper sample con	tainer type receive	d.		Yes
3. Does the	bottle label indica	ate that proper che	nical preservatives were added if required.		N/A
3a. If preserv	ved, was the sam	ple bottle (except \	OC Vials, 1005 Vials and FC bottles) at the proper pH.		N/A
3b. If no, wa	s the sample's pF	I adjusted (except	VOC Vials, 1005 Vials & FC Bottles) and the changes in pH	recorded.	N/A
4. If the bottl	le was a VOC via	al, was it free of he	adspace.		N/A
5. Was the bo	ottle received inta	act.			Yes
6. Was the s	ample received w	vithin holding time	. If no, notify the client.		Yes
7. Was the cl	nain of custody d	ocuments complete	ed correctly. (Ink, signed, matches container)		Yes
8. Bottle Sea	ls Attached				N/R
T	* manus	00000000000			
1145499 1.Was the sa	01 mple container p	00000001014 roperly labeled.	15 Client supplied glass		Yes
2. Was the pr	roper sample con	tainer type receive	d.		Yes
3. Does the 1	bottle label indica	ate that proper che	nical preservatives were added if required.		N/A
3a. If preser	ved, was the sam	ple bottle (except \	/OC Vials, 1005 Vials and FC bottles) at the proper pH.		N/A
3b. If no, wa	s the sample's pF	I adjusted (except	VOC Vials, 1005 Vials & FC Bottles) and the changes in pH	recorded.	N/A
4. If the bottl	e was a VOC via	al, was it free of he	adspace.		N/A
5. Was the b	ottle received into	act.			Yes

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### Report To

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Project



Receipt	Cooler		Air Bill	Received	Ву
18586	0102364016	***************************************	pace fedex535642318104	08/28/2012	КАТ
Sample	Bottle Bar	rcode	Description		
6. Was the sa	ample received within l	holding time	If no, notify the client.		Yes
7. Was the ch	nain of custody docume	ents complete	d correctly. (Ink, signed, matches container)		Yes
8. Bottle Seal	ls Attached				N/R
1145500	• <b>01</b> 000	000001014	5 Client supplied glass		
	mple container properly	y labeled.	0		Yes
2. Was the pr	roper sample containcr	type received	<b>J</b> .		Yes
3. Does the 1	pottle label indicate tha	it proper cher	nical preservatives were added if required.		N/A
3a. If preserv	ved, was the sample bo	ttle (except \	OC Vials, 1005 Vials and FC bottles) at the proper pH.		N/A
3b. If no, wa	s the sample's pH adjus	sted (except	VOC Vials, 1005 Vials & FC Bottles) and the changes in pH reco	rded.	N/A
4. If the bottl	e was a VOC vial, was	it free of hea	dspace.		N/A
5. Was the bo	ottle received intact.				Yes
6. Was the s	ample received within I	holding time	If no, notify the client.		Yes
7. Was the ch	nain of custody docume	ents complete	d correctly. (Ink, signed, matches container)		Yes
8. Bottle Seal	s Attached				N/R
a one or other contents of the contents o	v.				
1145504 1. Was the sai	mple container properly	000001014 y labeled.	5 Client supplied glass		Yes
2. Was the pr	oper sample container	type receive	1.		Yes
3. Does the t	oottle label indicate tha	it proper chei	nical prescrvatives were added if required.		N/A
3a. If preserv	ved, was the sample bot	ttle (except \	OC Vials, 1005 Vials and FC bottles) at the proper pH.		N/A

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### Report To

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Project

Receipt	Cooler	Air Bill	Received	Ву		
18586 <b>0102364016</b>		pace fedex535642318104	08/28/2012	KAT		
Sample	Bottle Barcode	Description				
3b. If no, was	the sample's pH adjusted (except	VOC Vials, 1005 Vials & FC Bottles) and the changes in pH recorded.		N/A		
4. If the bottle	was a VOC vial, was it free of he		N/A			
5. Was the bott	ttle received intact.		Yes			
6. Was the san	mple received within holding tim		Yes			
7. Was the cha	in of custody documents comple	ted correctly. (Ink, signed, matches container)		Yes		
8. Bottle Seals	Attached			N/R		
18603	1690537132	PSR1-456914066671-FEDEX	08/30/2012	ССР		
Sample	Bottle Barcode	Description				
1145495 1.Was the sam	01 0000000101	54 Client supplied glass		Yes		
	2. Was the proper sample container type received.					
<ol><li>Was the proj</li></ol>	•	ad		Yes		
	oper sample container type receive	ed. emical preservatives were added if required.				
3. Does the bo	oper sample container type receive			Yes		
3. Does the bo	oper sample container type receive ottle label indicate that proper che ed, was the sample bottle (except	emical preservatives were added if required.		Yes N/A		
3. Does the bo 3a. If preserve 3b. If no, was	oper sample container type receive ottle label indicate that proper che ed, was the sample bottle (except	emical preservatives were added if required.  VOC Vials, 1005 Vials and FC bottles) at the proper pH.  VOC Vials, 1005 Vials & FC Bottles) and the changes in pH recorded.		Yes N/A N/A		
3. Does the bo 3a. If preserve 3b. If no, was 4. If the bottle	oper sample container type received ottle label indicate that proper che ed, was the sample bottle (except the sample's plf adjusted (except	emical preservatives were added if required.  VOC Vials, 1005 Vials and FC bottles) at the proper pH.  VOC Vials, 1005 Vials & FC Bottles) and the changes in pH recorded.		Yes N/A N/A N/A		
3. Does the bo 3a. If preserve 3b. If no, was 4. If the bottle 5. Was the bott	oper sample container type received that proper cheed, was the sample bottle (except the sample's plf adjusted (except was a VOC vial, was it free of he	emical preservatives were added if required.  VOC Vials, 1005 Vials and FC bottles) at the proper pH.  VOC Vials, 1005 Vials & FC Bottles) and the changes in pH recorded.  eadspace.		Yes N/A N/A N/A		

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Receipt	Cooler	Air Bill	Received	Ву
18603	1690537132	PSR1-456914066671-FEDEX	08/30/2012	ССР
Sample	Bottle Barcode	Description		
8. Bottle Seals	s Attached			N/R
1145496 1. Was the san	i 01 0000000	44 0		Yes
2. Was the pro	oper sample container type r	eceived.		Yes
3. Does the b	ottle label indicate that prop	er chemical preservatives were added if required.		N/A
3a. If preserv	red, was the sample bottle (ex	ccept VOC Vials, 1005 Vials and FC bottles) at the proper p	ьн.	N/A
3b. If no, was	s the sample's pH adjusted (e	xcept VOC Vials, 1005 Vials & FC Bottles) and the change	es in pH recorded.	N/A
4. If the bottle	e was a VOC vial, was it free	of headspace.		N/A
5. Was the bo	ottle received intact.			Yes
6. Was the sa	ample received within holdin	g time. If no, notify the client.		Yes
7. Was the ch	ain of custody documents co	mpleted correctly. (Ink, signed, matches container)		Yes
8. Bottle Seal	s Attached			N/R
1145497 1. Was the san	nple container properly label			Yes
2. Was the pr	oper sample container type r	eceived.		Yes
3. Does the b	oottle label indicate that prop	er chemical preservatives were added if required.		N/A
3a. If preserv	red, was the sample bottle (ex	ccept VOC Vials, 1005 Vials and FC bottles) at the proper p	оН.	N/A
3b. If no, was	s the sample's pH adjusted (e	xcept VOC Vials, 1005 Vials & FC Bottles) and the change	es in pH recorded.	N/A
4. If the bottle	e was a VOC vial, was it free	of headspace.		N/A

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	Cooler	Air Bill	Received	Ву
8603	1690537132	PSR1-456914066671-FEDEX	08/30/2012	CCP
Sample	Bottle Barcode	Description		
5. Was the bo	ottle received intact.			Yes
6. Was the sa	ample received within holding ti		Yes	
7. Was the ch	ain of custody documents comp	÷	Yes	
8. Bottle Seal	s Attached		N/R	
8604	1690537132	PSR1-986953697821-FEDRX	08/30/2012	ССР
Sample	Bottle Barcode	Description		
1145501		0154 Client supplied glass		
	mple container properly labeled.			Yes Yes
1. Was the sau  2. Was the pr	mple container properly labeled,			,
<ol> <li>Was the sar</li> <li>Was the pr</li> <li>Does the b</li> </ol>	mple container properly labeled, roper sample container type rece	ived.		Yes
<ol> <li>Was the sar</li> <li>Was the pr</li> <li>Does the t</li> <li>If preserv</li> </ol>	roper sample container type rece pottle label indicate that proper cover, was the sample bottle (except	ived. chemical preservatives were added if required.	ecorded.	Yes N/A
<ol> <li>Was the sar</li> <li>Was the pr</li> <li>Does the t</li> <li>If preserv</li> <li>If no, wa</li> </ol>	roper sample container type rece pottle label indicate that proper cover, was the sample bottle (except	ived.  chemical prescruatives were added if required.  pt VOC Vials, 1005 Vials and FC bottles) at the proper pH.  ept VOC Vials, 1005 Vials & FC Bottles) and the changes in pH re	ecorded.	Yes N/A N/A
1. Was the sar 2. Was the pr 3. Does the th 3a. If preserv 3b. If no, wa 4. If the bottle	roper sample container type rece pottle label indicate that proper coved, was the sample bottle (excepts the sample's pH adjusted (excepts the sample's pH adjusted (excepts)	ived.  chemical prescruatives were added if required.  pt VOC Vials, 1005 Vials and FC bottles) at the proper pH.  ept VOC Vials, 1005 Vials & FC Bottles) and the changes in pH re	ecorded.	Yes N/A N/A N/A
1. Was the sar  2. Was the pr  3. Does the th  3a. If preserv  3b. If no, wa  4. If the bottle  5. Was the box	roper sample container type rece pottle label indicate that proper coved, was the sample bottle (excepts the sample's pH adjusted (excepts the sample's pH adjusted for every sample of the sample's pH adjusted for every sample of the sample's pH adjusted for every sample of the sample's pH adjusted for every sample of the sample's pH adjusted for every sample of the sample of th	ived.  chemical preservatives were added if required.  pt VOC Vials, 1005 Vials and FC bottles) at the proper pH.  ept VOC Vials, 1005 Vials & FC Bottles) and the changes in pH recheatspace.	ecorded.	Yes N/A N/A N/A
1. Was the sar  2. Was the pr  3. Does the b  3a. If preserv  3b. If no, wa  4. If the bottle  5. Was the be  6. Was the sar	roper sample container type rece roper sample container type rece rottle label indicate that proper of red, was the sample bottle (except s the sample's pH adjusted (except e was a VOC vial, was it free of ottle received intact. cample received within holding ti	ived.  chemical preservatives were added if required.  pt VOC Vials, 1005 Vials and FC bottles) at the proper pH.  ept VOC Vials, 1005 Vials & FC Bottles) and the changes in pH recheatspace.	ecorded.	Yes N/A N/A N/A N/A Yes

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eceipt	Cooler	Air Bill	Received	Ву
8604	1690537132	PSR1-986953697821-FEDRX	08/30/2012	CCP
Sample	Bottle Barcode	Description		
1. Was the sa	umple container properly labeled.			Yes
2. Was the p	roper sample container type receive	ed.		Yes
3. Does the	bottle label indicate that proper che	mical preservatives were added if required.		N/A
3a. If preser	ved, was the sample bottle (except	VOC Vials, 1005 Vials and FC bottles) at the proper pH.		N/A
3b. If no, wa	as the sample's pH adjusted (except	VOC Vials, 1005 Vials & FC Bottles) and the changes in pH re	corded.	N/A
4. If the bott	le was a VOC vial, was it free of he	adspace.		N/A
5. Was the b	ottle received intact.			Yes
6. Was the s	sample received within holding time	e. If no, notify the client,		Yes
7. Was the cl	hain of custody documents complet	ed correctly. (Ink, signed, matches container)		Yes
8. Bottle Sea	als Attached			N/R
1145503	01 0000000101.	54 Client supplied glass		
	imple container properly labeled.			Yes
2. Was the p	roper sample container type receive	d.		Yes
3. Does the	bottle label indicate that proper che	mical preservatives were added if required.		N/A
3a. If preser	ved, was the sample bottle (except	VOC Vials, 1005 Vials and FC bottles) at the proper pH.		N/A
3b. If no, wa	as the sample's pH adjusted (except	VOC Vials, 1005 Vials & FC Bottles) and the changes in pH re	corded.	N/A
4. If the bottl	le was a VOC vial, was it free of he	adspace.		N/A
5. Was the be	ottle received intact.			Yes
6. Was the s	cample received within holding time	e. If no, notify the client.		Yes

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75.72 <b>(68</b> 6), 57.70, 53.		and the second second
	Table 24-10-10	
	APT'A	
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Section 2. The American	G 45 M ARCH 2007	and the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second o

Re	Receipt Cooler			Air Bill	Received	Ву
18	18604 <b>1690537132</b>		132	PSR1-986953697821-FEDRX	08/30/2012	ССР
: ;	Sample	Bottle	Barcode	Description		
	7. Was the ch	ain of custody do	ocuments complet	ted correctly. (Ink, signed, matches container)		Yes
;	8. Bottle Seal	s Attached				N/R
Name and the						
	N	/R: Not Revi	ewed	N/A: Not Applicable		* Out

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Sample	Sample ID	Taken	Time	Received
1145495	31/32A 60127664001	08/17/2012	00:00:00	08/28/2012
Bottle 03 Prepa	supplied glass red Bottle: 2 mL Glass vial (Batch 490902 red Bottle: 2 mL Glass vial (Batch 490902 red Bottle: 2 mL Glass vial (Batch 490902	) Volume: 50.00000 mL <== I	Derived from 01 (	5 grams)
	Method	Bottle	PrepSet	Preparation QcGroup Analytics
	EPA 314.0	02	490902	09/10/2012 491854 09/14/201
1	SM2540 G, 20th /MOD	01	490931	09/07/2012 490931 09/07/201
1145496	33/34A 60127664002	08/17/2012	00:00:00	08/28/2012
Bottle 01 Client Bottle 02 Prepa	supplied glass red Bottle: 2 mL Glass vial (Batch 490902 Method	) Volume: 50.00000 mL <== I Bottle	Derived from 01 (  PrepSet	5 grams )  Preparation QcGroup Analytics
	EPA 314.0	02	490902	09/10/2012 491854 09/14/201
	SM2540 G, 20th /MOD	01	490931	09/07/2012 490931 09/07/201
1145497	35/36A 60127664003	08/17/2012	00:00:00	08/28/2012
Bottle 01 Client Bottle 02 Prepa	supplied glass red Bottle: 2 mL Glass vial (Batch 490902	) Volume: 50.00000 mL <== 1	Derived from 01 (	5 grams )
	Method	Bottle	PrepSet	Preparation QcGroup Analytica
	EPA 314.0	02	490902	09/10/2012 491854 09/14/201
	SM2540 G, 20th /MOD	01	491430	09/12/2012 491430 09/12/201
1145498	41/42A 60127664004	08/17/2012	00:00:00	08/28/2012
Bottle 01 Client Bottle 02 Prepa	supplied glass red Bottle: 2 mL Glass vial (Batch 490902	) Volume: 50.00000 mL ← I	Derived from 01 (	5 grams )
	Method	Bottle	PrepSet	Preparation QcGroup Analytica
	EPA 314.0	02	490902	09/10/2012 491854 09/14/201
	SM2540 G, 20th /MOD	01	490931	09/07/2012 490931 09/07/201
1145499	43/44A 60127664005	08/17/2012	00:00:00	08/28/2012

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**Project** 



Sample	Sample ID	Taken	Time		Received	
Bottle 01 Clier Bottle 02 Prep	nt supplied glass ared Bottle: 2 mL Glass vial (Batch 490902	) Volume: 50.00000 mL <== I	Derived from 01 (	5 grams)		
	Method EPA 314.0 SM2540 G, 20th /MOD	<b>Bottle</b> 02 01	PrepSet 490902 490931	Preparation 09/10/2012 09/07/2012	<b>QcGroup</b> 491854 490931	<b>Analytical</b> 09/15/2012 09/07/2012
1145500	49/50A 60127664006	08/17/2012	00:00:00		08/28/2012	
	Method EPA 314.0 SM2540 G, 20th /MOD	Bottle 02 01	PrepSet 490902 490931	Preparation 09/10/2012 09/07/2012	QcGroup 491854 490931	Analytical 09/14/2012 09/07/2012
1145501	51/52A 60127664007	08/17/2012	00:00:00		08/28/2012	0,70772012
	,					
	nt supplied glass ared Bottle: 2 mL Glass vial (Batch 490902	) Volume: 50.00000 mL <== I	Derived from 01 (	5 grams )		
	Method EPA 314.0 SM2540 G, 20th /MOD	<b>Bottle</b> 02 01	PrepSet 490902 490931	Preparation 09/10/2012 09/07/2012	<b>QcGroup</b> 491854 490931	<b>Analytical</b> 09/15/2012 09/07/2012
1145502	53/54A 60127664008	08/17/2012	00:00:00		08/28/2012	
	nt supplicd glass ared Bottle: 2 mL Glass vial (Batch 490902	.) Volume: 50.00000 mL <== I	Derived from 01 (	5 grams )		
-	Method	Bottle	PrepSet	Preparation	QcGroup	Analytical

Method		Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 314.0		02	490902	09/10/2012	491854	09/15/2012
SM2540 G, 2	20th /MOD	01	490931	09/07/2012	490931	09/07/2012

1145503

55/56A 60127664009

08/17/2012

00:00:00

08/28/2012

Bottle 01 Client supplied glass

Bottle 02 Prepared Bottle: 2 mL Glass vial (Batch 490902) Volume: 50.00000 mL <= Derived from 01 (5 grams)

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Project



Sample	Sample ID	Taken	Time	Received
1145503	55/56A 60127664009	08/17/2012	00:00:00	08/28/2012
Bottle 01 Client : Bottle 02 Prepare	supplied glass ed Bottle: 2 mL Glass vial (Batch 490902) Volum	e: 50.00000 mL <== Deri	ved from 01 (5 grams)	
	Method	Bottle	PrepSet Preparati	on QcGroup Analytical
	EPA 314.0	02	490902 09/10/201	2 491854 09/15/2012
	SM2540 G, 20th /MOD	01	490931 09/07/201	2 490931 09/07/2012
1145504	57/58A 60127664010	08/17/2012	00:00:00	08/28/2012

Bottle 01 Client supplied glass

Bottle 02 Prepared Bottle: 2 mL Glass vial (Batch 490902) Volume: 50.00000 mL <= Derived from 01 (5 grams)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 314.0	02	490902	09/10/2012	491854	09/14/2012
SM2540 G, 20th /MOD	01	491430	09/12/2012	491430	09/12/2012

Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662





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Holding Time Compliance

Printed 09/17/2012

Page 1 of 1

### Report To

Sherri Rosenstangle Pace Analytical 9608 Loiret Blvd Lenexa, KS 66219

Project

<u>Name</u>	Method	Taken:		Received Analyzed	<u>Hold</u>	Elapsed
114	15495	8/17/12	0:00	08/28/2012		
Perchlorate (water extractable) Water Extract-Ion Chromatography	EPA 314.0 SW-846 9056			9/14/12 10:40 9/10/12 9:20	28.00 180.00	28.00 24.00
114	15496	8/17/12	0:00	08/28/2012		:
Perchlorate (water extractable) Water Extract-Ion Chromatography	EPA 314.0 SW-846 9056			9/14/12 13:09 9/10/12 9:20	28.00 180.00	28.00 24.00
114	15497	8/17/12	0:00	08/28/2012		
Perchlorate (water extractable) Water Extract-Ion Chromatography	EPA 314.0 SW-846 9056			9/14/12 13:46 9/10/12 9:20	28.00 180.00	28.00 24.00
114	15498	8/17/12	0:00	08/28/2012		
Perchlorate (water extractable) Water Extract-Ion Chromatography	EPA 314.0 SW-846 9056			9/14/12 14:23 9/10/12 9:20	28.00 180.00	28.00 24.00
114	15499	8/17/12	0:00	08/28/2012		*
Perchlorate (water extractable) Water Extract-Ion Chromatography	EPA 314.0 SW-846 9056			9/15/12 10:56 9/10/12 9:20	28.00 180.00	29.00 * 24.00
114	15500	8/17/12	0:00	08/28/2012		
Perchlorate (water extractable) Water Extract-Ion Chromatography	EPA 314.0 SW-846 9056			9/14/12 15:38 9/10/12 9:20	28.00 180.00	28.00 24.00
114	5501	8/17/12	0:00	08/28/2012		
Perchlorate (water extractable) Water Extract-Ion Chromatography	EPA 314.0 SW-846 9056			9/15/12 10:19 9/10/12 9:20	28.00 180.00	29.00 * 24.00
114	15502	8/17/12	0:00	08/28/2012		
Perchlorate (water extractable) Water Extract-Ion Chromatography	EPA 314.0 SW-846 9056			9/15/12 11:33 9/10/12 9:20	28.00 180.00	29.00 * 24.00
114	15503	8/17/12	0:00	08/28/2012	·	
Perchlorate (water extractable) Water Extract-Ion Chromatography	EPA 314.0			9/15/12 12:10 9/10/12 9:20	28.00 180.00	29.00 * 24.00
114	5504	8/17/12	0:00	08/28/2012		
Perchlorate (water extractable) Water Extract-Ion Chromatography	EPA 314.0 SW-846 9056			9/14/12 18:07 9/10/12 9:20	28.00 180.00	28.00 24.00

Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662





PSR1

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Workorder#60127664 Workorder Name:REL1-11-11

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Page 1 of 7

Results COMPLETE SERVICE LAB

Client:

Project: 582474

Account

PSR1-A

Project 582474

Report To

Sherri Rosenstangle Pace Analytical 9608 Loiret Blvd Lenexa, KS 66219

Results

Results

Prepared:

Prepared:

Prepared:

Prepared:

Units

RI.

Flags

CAS

Bottle

08/28/2012

1145495

31/32A 60127664001

Collected by: Client

Affiliation:

Pace Analytical

08/17/2012

Solid

**Parameter** 

09/10/2012

09:20:47

Received:

00:00:00

EPA 314.0

Perchlorate (water extractable)

0.680 \*

490902

Analyzed: WJY mg/kg

09/14/2012 0.0421

10:40:58 QCgroup 7790-98-9

491854 02

\* Dry Weight Basis

09/07/2012 490931

12:40:04

SM2540 G, 20th /MOD Total Solids for Dry Wt

95.0

Analyzed: MLC 09/07/2012 %

0.010

12:40:04 QCgroup

490931 01

1145496 Solid

33/34A 60127664002

Collected by: Client

Affiliation:

Pace Analytical

Received: 08/28/2012 08/17/2012

00:00:00

EPA 314.0

Perchlorate (water extractable)

490902

09/10/2012 Analyzed: WJY

09/14/2012

09:20:47 13:09:37 QCgroup

491854

\* Dry Weight Basis

0.355 \*

mg/kg

0.0406

7790-98-9

02

SM2540 G, 20th /MOD

Total Solids for Dry Wt

490931

98.6

09/07/2012 Analyzed: MLC 09/07/2012

12:40:04

1145497 ; 35/36A 60127664003

0.010

12:40:04 QCgroup Received: 08/28/2012

490931 01

Solid

Collected by: Client

Affiliation:

Pace Analytical

08/17/2012 00:00:00

\* Dry Weight Basis

Prepared: 490902 09/10/2012

EPA 314.0

Solid

Perchlorate (water extractable)

0.417 \*

Analyzed: WJY

09/14/2012 0.0412

09:20:47 13:46:46 QCgroup

491854

Prepared:

491430

09/12/2012

7790-98-9

02

SM2540 G, 20th /MOD Total Solids for Dry Wt

mg/kg

Analyzed: MI.C 09/12/2012 0.010

14:42:59 14:42:59 QCgroup

491430 01

1145498 41/42A 60127664004

Collected by: Client

97.1

Affiliation:

Pace Analytical

Received: 08/28/2012 08/17/2012

00:00:00

Prepared: Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662

09/10/2012

09:20:47

Corporate: 2600 Dudley Road Kilgore TX 75662





490902



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Page 2 of 7

Results

Client:

PSR1

Project: 582474

Results

Parameter	Rësults	Units RL	Flags	CAS	Bottle
1145498 41/42A 60127664004	de contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contracti			Received:	08/28/2012
Solid	Collected by: Client	Affiliation:	Pace Analyt	ical 08/17	/2012 00:00:00
EPA 314.0  z Perchlorate (water extractable) * Dry Weight Basis	0.566 *	Analyzed: WJY mg/kg	09/14/2012 0.0417	14:23:55 QCgroi 7790-98-9	up 491854 02
Prepa	ared; 490931	09/07/201	2	12:40:04	
SM2540 G, 20th /MOD  N Total Solids for Dry Wt	96.0	Analyzed: MLC	<i>09/07/2012</i> 0.010	12:40:04 QCgroi	<i>up</i> 490931 01
1145499 43/44A 60127664005				Received:	08/28/2012
Solid	Collected by: Client	Affiliation:	Pace Analyt	ical 08/17	/2012 00:00:00
Prepa EPA 314.0 z Perchlorate (water extractable) * Dry Weight Basis	ared: 490902 1.15 *	09/10/201 Analyzed: WJY mg/kg	09/15/2012	09:20:47 10:56:08 QCgroi 1 7790-98-9	49 491854 02
Prepa	ared: 490931	09/07/201	2	12:40:04	
SM2540 G, 20th /MOD  N Total Solids for Dry Wt	98.5	Analyzed: MLC	<i>09/07/2012</i> 0.010	12:40:04 QCgro	<i>up 490931</i> 01
1145500 49/50A 60127664006				Received:	08/28/2012
Solid	Collected by: Client	Affiliation:	Pace Analyt	ical 08/17	/2012 00:00:00
Prepa	ared: 490902	09/10/201		09:20:47	
EPA 314.0  z Perchlorate (water extractable)  * Dry Weight Basis	0.115 *	· Analyzed: WJY mg/kg	<i>09/14/2012</i> 0.0421	15:38:15 QCgrot 7790-98-9	ip 491854 02
Prepa	ared: 490931	09/07/201	2	12:40:04	
SM2540 G, 20th /MOD		Analyzed: MLC		12:40:04 QCgrot	•
N Total Solids for Dry Wt	94.9	%	0.010		01
1145501 51/52A 60127664007				Received:	08/28/2012
Solid	Collected by: Client	Affiliation:	Pace Analyt	ical 08/17.	/2012 00:00:00
Prepa	ared: 490902	09/10/201	2	09:20:47	
EPA 314.0		Analyzed: WJY	09/15/2012	10:19:01 QCgros	ip 491854
z Perchlorate (water extractable) * Dry Weight Basis	2.51 *	mg/kg	0.409 I	Ŧ 7790-98-9	02
Ргера	ared: 490931	09/07/201	2	12:40:04	

Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662

**Total Solids for Dry Wt** 

SM2540 G, 20th /MOD

Corporate: 2600 Dudley Road Kilgore TX 75662

12:40:04 QCgroup



Analyzed: MLC 09/07/2012

0.010



490931

01

97.8



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09/17/2012

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THE COMPLETE SERVICE LAB

Parameter

Results

PSŘ1 Client:

Project: 582474

Results

Results

Units

RL

Flags

CAS

Received:

Bottle

08/28/2012

1145502 Solid

53/54A 60127664008

Collected by: Client

Affiliation:

Pace Analytical

08/17/2012

00:00:00

490902

09/10/2012 Analyzed: WJY 09/15/2012

09:20:47 11:33:18 QCgroup

491854

EPA 314.0

Perchlorate (water extractable)

3.25 \*

mg/kg

0.412

Н 7790-98-9 02

\* Dry Weight Basis

Prepared:

490931

09/07/2012 Analyzed: MLC 09/07/2012

12:40:04 12:40:04 QCgroup

490931

SM2540 G, 20th /MOD Total Solids for Dry Wt

Prepared:

Prepared:

Prepared:

97.2

0.010

01 Received: 08/28/2012

Solid

1145503 55/56A 60127664009

Collected by: Client

Affiliation:

Pace Analytical

08/17/2012 00:00:00

EPA 314.0

Perchlorate (water extractable)

490902 1.80 \*

490931

09/10/2012 Analyzed: WJY

09/15/2012 0.211

0.010

09:20:47 12:10:29 QCgroup

7790-98-9

491854 02

\* Dry Weight Basis

SM2540 G. 20th /MOD

Total Solids for Dry Wt

94.6

09/07/2012 Analyzed: MLC 09/07/2012

mg/kg

12:40:04 12:40:04 QCgroup

H

490931

01

Solid

1145504 57/58A 60127664010

Collected by: Client

Affiliation:

mg/kg

Pace Analytical

Received: 08/28/2012

Received: 08/28/2012

08/17/2012 00:00:00

EPA 314.0 Perchlorate (water extractable)

0.503 \*

09/10/2012 Analyzed: WJY 09/14/2012

0.0412

0.010

09:20:47

18:07:07 QCgroup 7790-98-9

491854

\* Dry Weight Basis

Prepared:

Prepared:

Prepared:

490902

02

SM2540 G, 20th /MOD

Total Solids for Dry Wt

491430

09/12/2012

Analyzed: MLC 09/12/2012

14:42:59 14:42:59 QCgroup

491430 01

Sample Preparation

97.1

1145495

Calculation

31/32A 60127664001

08/30/2012

**Bottle Temperature on Receipt** 

1

Analyzed: CCP 08/30/2012

00:00:00 00:00:00 QCgroup

Prepared:

09/17/2012

degrees

15:00:22

Corporate: 2600 Dudley Road Kilgore TX 75662

Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662

Analyzed: CAL 09/17/2012

15:00:22 QCgroup

Pace 2019 SPage 65cofi& Ce

01

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LDSClient v1.1.38.331

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Results

Client: PSR1

Project: 582474

**Sample Preparation** 

1145495 31/32A 60127664001			Received: 08	
Calculation		Analyzed: CAL 09/17/2012	15:00:22 QCgroup	
As Received to Dry Weight Basis	Calculated		2-6.0-4	
Prepared:	490902	09/10/2012	09:20:47	
SW-846 9056	EDIE	Analyzed: LPI 09/10/2012	09:20:47 QCgroup	4909
N Water Extract-Ion Chromatography	50/5	grams	Received: 08	01
1145496 33/34A 60127664002			Neceivea. 00	120120
Prepared:		08/30/2012	00:00:00	
		Analyzed: CCP 08/30/2012	00:00:00 QCgroup	
Bottle Temperature on Receipt	1	degrees		01
Prepared:		09/17/2012	15:00:22	
Calculation	03.54.5	Analyzed: CAL 09/17/2012	15:00:22 QCgroup	
As Received to Dry Weight Basis	Calculated			
Prepared:	490902	09/10/2012	09:20:47	
SW-846 9056  N Water Extract-lon Chromatography  1145497 35/36A 60127664003	50/5	Analyzed: LPI 09/10/2012 grams	09:20:47 QCgroup  Received: 08	4909 01 1/28/20
N Water Extract-Ion Chromatography	50/5			01
N Water Extract-Ion Chromatography	50/5	grams 08/30/2012	Received: 08	01
N Water Extract-lon Chromatography  1145497 35/36A 60127664003  Prepared:		grams  08/30/2012  Analyzed: CCP 08/30/2012	Received: 08	01 /28/20
N Water Extract-Ion Chromatography  1145497 35/36A 60127664003  Prepared:  Bottle Temperature on Receipt	50/5	98/30/2012  Analyzed: CCP 08/30/2012  degrees	Received: 08 00:00:00 00:00:00 QCgroup	01
N Water Extract-Ion Chromatography  1145497 35/36A 60127664003  Prepared:  Bottle Temperature on Receipt  Prepared:		08/30/2012  Analyzed: CCP 08/30/2012  degrees  09/17/2012	Received: 08 00:00:00 00:00:00 QCgroup	01 /28/20
N Water Extract-Ion Chromatography  1145497 35/36A 60127664003  Prepared:  Bottle Temperature on Receipt		98/30/2012  Analyzed: CCP 08/30/2012  degrees	Received: 08 00:00:00 00:00:00 QCgroup	01 /28/20
N Water Extract-Ion Chromatography  1145497 35/36A 60127664003  Prepared:  Bottle Temperature on Receipt  Prepared:  Calculation As Received to Dry Weight Basis  Prepared:	1	08/30/2012 Analyzed: CCP 08/30/2012 degrees 09/17/2012 Analyzed: CAL 09/17/2012	Received: 08  00:00:00  00:00:00 QCgroup  15:00:22  15:00:22 QCgroup	01
N Water Extract-Ion Chromatography  1145497 35/36A 60127664003  Prepared:  Bottle Temperature on Receipt  Prepared:  Calculation  As Received to Dry Weight Basis  Prepared:  SW-846 9056	1 Calculated <b>490902</b>	08/30/2012 Analyzed: CCP 08/30/2012 degrees  09/17/2012 Analyzed: CAL 09/17/2012  09/10/2012 Analyzed: LPI 09/10/2012	Received: 08  00:00:00  00:00:00 QCgroup  15:00:22  15:00:22 QCgroup	01 7/28/20 01 4909
N Water Extract-Ion Chromatography  1145497 35/36A 60127664003  Prepared:  Bottle Temperature on Receipt  Prepared:  Calculation As Received to Dry Weight Basis  Prepared:  SW-846 9056 N Water Extract-Ion Chromatography	1 Calculated	08/30/2012 Analyzed: CCP 08/30/2012 degrees 09/17/2012 Analyzed: CAL 09/17/2012	Received: 08  00:00:00 00:00:00 QCgroup  15:00:22 15:00:22 QCgroup  09:20:47 09:20:47 QCgroup	01 /28/20 01 4909 01
N Water Extract-Ion Chromatography  1145497 35/36A 60127664003  Prepared:  Bottle Temperature on Receipt  Prepared:  Calculation  As Received to Dry Weight Basis  Prepared:  SW-846 9056	1 Calculated <b>490902</b>	08/30/2012 Analyzed: CCP 08/30/2012 degrees  09/17/2012 Analyzed: CAL 09/17/2012  09/10/2012 Analyzed: LPI 09/10/2012	Received: 08  00:00:00  00:00:00 QCgroup  15:00:22  15:00:22 QCgroup	01 /28/20 01 4909 01
N Water Extract-Ion Chromatography  1145497 35/36A 60127664003  Prepared:  Bottle Temperature on Receipt  Prepared:  Calculation As Received to Dry Weight Basis  Prepared:  SW-846 9056 N Water Extract-Ion Chromatography	1 Calculated <b>490902</b>	08/30/2012 Analyzed: CCP 08/30/2012 degrees  09/17/2012 Analyzed: CAL 09/17/2012  09/10/2012 Analyzed: LPI 09/10/2012 grams	Received: 08  00:00:00  00:00:00 QCgroup  15:00:22 QCgroup  09:20:47  09:20:47 QCgroup  Received: 08	01 /28/20 01 4909 01
N Water Extract-Ion Chromatography  1145497 35/36A 60127664003  Prepared:  Bottle Temperature on Receipt  Prepared:  Calculation As Received to Dry Weight Basis  Prepared:  SW-846 9056 N Water Extract-Ion Chromatography  1145498 41/42A 60127664004	1 Calculated <b>490902</b>	08/30/2012 Analyzed: CCP 08/30/2012 degrees  09/17/2012 Analyzed: CAL 09/17/2012  09/10/2012 Analyzed: LPI 09/10/2012 grams	Received: 08  00:00:00 00:00:00 QCgroup  15:00:22 QCgroup  09:20:47 09:20:47 QCgroup  Received: 08	01 /28/20 01 4909 01







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Results

Client:

PSR1

Project: 582474

Sample Preparation

1145498 41/42A 60127664004			Received: 08/	/28/201
Calculation		Analyzed: CAL 09/17/2012	15:00:22 QCgroup	
As Received to Dry Weight Basis	Calculated	Indijaca. CIII 07/17/2012	15.00.22 QOg. 0p	
Prepared:	490902	09/10/2012	09:20:47	
SW-846 9056		Analyzed: LPI 09/10/2012	09:20:47 QCgroup	49090
N Water Extract-Ion Chromatography	50/5	grams		01
1145499 43/44A 60127664005			Received: 08	/28/201
Prepared:	,	08/28/2012	00:00:00	
		Analyzed: KAT 08/28/2012	00:00:00 QCgroup	
Bottle Temperature on Receipt	3	degrees		01
Prepared:		09/17/2012	15:00:22	
Calculation		Analyzed: CAL 09/17/2012	15:00:22 OCgroup	
As Received to Dry Weight Basis	Calculated		₽-04	
Prepared:	490902	09/10/2012	09:20:47	
SW-846 9056		Analyzed: LPI 09/10/2012	09:20:47 QCgroup	49090
N Water Extract-ion Chromatography	50/5	grams		01
Prepared:		08/28/2012	00:00:00	
		Analyzed: KAT 08/28/2012	00:00:00 QCgroup	
Bottle Temperature on Receipt	<1	degrees		01
Prepared:		09/17/2012	15:00:22	
Calculation		Analyzed: CAL 09/17/2012	15:00:22 QCgroup	
As Received to Dry Weight Basis	Calculated			
Prepared:	490902	09/10/2012	09:20:47	
SW-846 9056		Analyzed: LPI 09/10/2012	09:20:47 QCgroup	49090
	50/5	grams		01
N Water Extract-ion Chromatography				
N Water Extract-Ion Chromatography 1145501 51/52A 60127664007			Received: 08/	/28/201
		08/30/2012	Received: 08/	/28/201
1145501 51/52A 60127664007		08/30/2012 Analyzed: CCP 08/30/2012		/28/201
1145501 51/52A 60127664007	3		00:00:00	01
1145501 51/52A 60127664007  Prepared:		Analyzed: CCP 08/30/2012	00:00:00	







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Results

Client:

PSR1

Project: 582474

**Sample Preparation** 

			Received: 08/	20/20
Calculation		Analyzed: CAL 09/17/2012	15:00:22 QCgroup	<del></del>
As Received to Dry Weight Basis	Calculated			
Prepared:	490902	09/10/2012	09:20:47	<u></u>
SW-846 9056		Analyzed: LPI 09/10/2012	09:20:47 QCgroup	4909
N Water Extract-Ion Chromatography	50/5	grams		01
1145502   53/54A 60127664008			Received: 08/	28/20
Prepared:		08/30/2012	00:00:00	<del></del>
Bottle Temperature on Receipt	5	Analyzed: CCP 08/30/2012 degrees	00:00:00 QCgroup	01
Prepared:		09/17/2012	15:00:22	•••
Calculation As Received to Dry Weight Basis	Calculated	Analyzed: CAL 09/17/2012	15:00:22 QCgroup	
Prepared:	490902	09/10/2012	09:20:47	
014/ 0 / 0 0 0 0 0		Analyzed: LPI 09/10/2012	09:20:47 QCgroup	4909
SW-846 9056  N Water Extract-Ion Chromatography  1145503 55/56A 60127664009	50/5	grams 9710/2012	Received: 08/	01
N Water Extract-Ion Chromatography 1145503 55/56A 60127664009	50/5	grams	Received: 08/	01
N Water Extract-Ion Chromatography	50/5	grams 08/30/2012	Received: 08/.	01
N Water Extract-Ion Chromatography 1145503 55/56A 60127664009	50/5 <1	grams	Received: 08/	01
N Water Extract-Ion Chromatography  1145503 55/56A 60127664009  Prepared:		grams 08/30/2012 Analyzed: CCP 08/30/2012	Received: 08/.	01 28/20
N Water Extract-Ion Chromatography  1145503 55/56A 60127664009  Prepared:  Bottle Temperature on Recelpt  Prepared:  Calculation	<1	08/30/2012  Analyzed: CCP 08/30/2012  degrees	Received: 08/. 00:00:00 00:00:00 QCgroup	01 28/20
N Water Extract-Ion Chromatography  1145503 55/56A 60127664009  Prepared:  Bottle Temperature on Receipt  Prepared:		08/30/2012  Analyzed: CCP 08/30/2012  degrees  09/17/2012	Received: 08/. 00:00:00 00:00:00 QCgroup 15:00:22	01 28/20
N Water Extract-Ion Chromatography  1145503 55/56A 60127664009  Prepared:  Bottle Temperature on Recelpt  Prepared:  Calculation As Received to Dry Weight Basis  Prepared:	<1	08/30/2012 Analyzed: CCP 08/30/2012 degrees 09/17/2012 Analyzed: CAL 09/17/2012	Received: 08/  00:00:00  00:00:00 QCgroup  15:00:22  15:00:22 QCgroup	01 28/20
N Water Extract-Ion Chromatography  1145503 55/56A 60127664009  Prepared:  Bottle Temperature on Recelpt  Prepared:  Calculation As Received to Dry Weight Basis  Prepared:  SW-846 9056	<1 Calculated 490902	08/30/2012 Analyzed: CCP 08/30/2012 degrees  09/17/2012 Analyzed: CAL 09/17/2012  09/10/2012 Analyzed: LPI 09/10/2012	Received: 08/. 00:00:00 00:00:00 QCgroup 15:00:22 15:00:22 QCgroup	01 28/20 01 01
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N Water Extract-Ion Chromatography  1145503 55/56A 60127664009  Prepared:  Bottle Temperature on Receipt  Prepared:  Calculation As Received to Dry Weight Basis  Prepared:  SW-846 9056 N Water Extract-Ion Chromatography  1145504 57/58A 60127664010	<1 Calculated 490902	08/30/2012 Analyzed: CCP 08/30/2012 degrees  09/17/2012 Analyzed: CAL 09/17/2012  09/10/2012 Analyzed: LPI 09/10/2012	Received: 08/2 00:00:00 00:00:00 QCgroup 15:00:22 15:00:22 QCgroup  09:20:47 09:20:47 QCgroup	01 28/20 01 4909 01
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Page 7 of 7

01

Results

Client:

PSR1

Project: 582474

Sample Preparation

1145504 ] 57/58A 60	127664010			Received: 08/28/2012
Calculation			Analyzed: CAL 09/17/2012	15:00:22 QCgroup
As Received to	Dry Weight Basis	Calculated		
	Prepared:	490902	09/10/2012	09:20:47
SW-846 9056			Analyzed: I.Pl 09/10/2012	09:20:47 OCaroun 490902

50/5

## Qualifiers:

H - Sample started outside recommended holding time

Water Extract-Ion Chromatography

We report results on an 'As Received' or wet basis unless marked 'Dry Weight'. Unless otherwise noted, testing was performed at Ana-lab's corporate laboratory that holds the following Federal and State certificates: Texas Department of Health Lead Firm Certificate 2110076, US Department of Agriculture Soil Import Permit S-37592, Texas Commisson on Environmental Quality Drinking Water Laboratory Certificate TX219, Texas Commission on Environmental Quality NELAP T104704201, Oklahoma Department of Environmental Quality Drinking Water Certification Lab ID# D9913, EPA Lab Number TX00063, USEPA Approved Perchlorate Testing Lab, Oklahoma Department of Environmental Quality Laboratory Certificate 8125, Arkansas Department of Environmental Quality Certification #03-070-0, Louisiana Department of Environmental Quality Laboratory Certification (NELAP, LELAP) #02008, Louisiana Department of Health and Hospitals Drinking Water (NELAP) # LA030020, US Department of Energy Approved, State of Kansas Department of Health and Environment Waste Water and Solid/Hazardous Waste Cert. E-10365. The Accredited column designates accreditation by N -- NELAC, or z -- not covered under NELAC scope of accreditation.

These analytical results relate to the sample tested. This report may NOT be reproduced EXCEPT in FULL without written approval of Ana-Lab Corp. Unless otherwise specified, these test results meet the requirements of NELAC. RL is the Reporting Limit (sample specific quantitation limit) and is at or above the Method Detection Limit (MDL). CAS is Chemical Abstract Service number.

C. H. Whiteside, Ph.D., President

Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662

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Page 1 of 2

## Report To

Sherri Rosenstangle Pace Analytical 9608 Loiret Blvd Lenexa, KS 66219

Workorder#60127664 Workorder Name:REL1-11

Account

PSR1 -A

Project

582474

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Parameter Perchlorate (water		<b>Reading</b> 0.00389	<i>Known</i> 0.004	Units mg/kg	Recover% 97.2	<i>Limits%</i> 70.0 - 130	Out	<i>File</i> 112805883			
extractable)				В	ank						
Parameter Perchlorate (water	<i>PrepSet</i> 490902	<b>Reading</b> 0.00106	<i>MDL</i> 0.00080	<i>MQL</i> 10.004	<i>Units</i> mg/kg			<i>File</i> 112805886			
extractable)				,C	CV						
Parameter Perchlorate (water extractable)		Reading 0.111	<i>Known</i> 0.100	<i>Units</i> mg/kg	Recover%	<i>Limits%</i> 80.0 - 120	Out	<i>File</i> 112805899			
extractable)				¥ ,:	CS						
Parameter Perchlorate (water extractable)	<i>PrepSet</i> 490902	Reading 0.114		<i>Known</i> 0.100	<i>Units</i> mg/kg	<b>Recover%</b> 114	<i>Limits</i> 80.0 - 120	<i>File</i> 112805884	Out		
extractable)				LC	S Dup						
Parameter Perchlorate (water extractable)	<i>PrepSet</i> 490902	<i>LCS</i> 0.114	<b>LCSD</b> 0.114		<i>Known</i> 0.100	<i>Limits%</i> 80.0 - 120	<i>LCS%</i> 114	<i>LCSD%</i> 114	<i>Units</i> mg/kg	<b>RPD</b> 0	<i>Limit</i> ? 20.0
extractable)				. 1	MS						
Parameter Perchlorate (water	Sample 1145495	MS 1.74	MSD	<i>UNK</i> 0.646	<i>Known</i> 1.00	<i>Limits</i> 80.0 - 120	<i>MS%</i> 109	MSD%	<i>Units</i> mg/kg	RPD	<i>Limit?</i> 20.0
extractable)				M	ISD						
Parameter Perchlorate (water extractable)	<i>Sample</i> 1145495	MS 1.74	<b>MSD</b> 1.69	<i>UNK</i> 0.646	<i>Кпоwп</i> 1.00	<i>Limits</i> 80.0 - 120	<b>MS%</b> 109	<b>MSD%</b> 104	Units mg/kg	<b>RPD</b> 4.69	<i>Limit</i> % 20.0
490931	W	Solid					SM2540	G, 20th /M	OD ,		
Section of manufacture interest at the				Cont	rolBlk						
Parameter Total Solids for Dry Wt	<i>PrepSet</i> 490931	<b>Reading</b> -0.0005	MDL.	MQL D	Units grams			File 112786327			
Parameter	Sample	Туре	Result	Unknow	olicate "		Unit		RPD		Limit?
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491430	W	Solid					SM2540	G, 20th /M	OD		

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NELAP-accredited #T104704201

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Page 2 of 2

	491430	W	Solid				SM2540 G, 2	Oth/MOD	
•					Cont	rolBlk			in antena
Parameter		PrepSet	•	MDL	MQL	Units	File		
Total Solids fo	or Dry Wt	491430	0.0001		Dup	grams Nicate	112	796796	
Parameter -		Sample	Туре	Result	Unknow	n	Unit	RPD	Limit%
Total Solids fo	or Dry Wt	1145497	Duplicate	97.0	97.1		%	0.103	20.0
Total Solids fo	or Dry Wt	1145504	Duplicate	97.0	97.1		%	0.103	20.0
Total Solids fo	or Dry Wt	1147157	Duplicate	99.3	99.2		%	0.101	20.0

RPD is Relative Percent Difference: abs(r1-r2) / mean(r1,r2) \* 100%

Recover% is Recovery Percent: result / known \* 100%

Corporate Shipping: 2600 Dudley Rd. Kilgore, TX 75662



Corporate: 2600 Dudley Road Kilgore TX 75662

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Workorder: 60127664 Workorder Name: REL1-11-11 B-3 Results Requested 9/17/2012	
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Sherri Rosenstangle Pace Analytical Kansas P.O. SUB-6419	
9508 Loiret Bivd.	
Lenexa, KS 66219	
Phone (913)599-5665	
Email: sherri.rosenstangle@pacelabs.com	
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## 582474 CoC Print Group 001 of 001

Pace Analytical www.pocelebe.com

Pace Analytical Services, Inc. 9608 Lolret Blvd. Lenexa, KS 66219 Phone: 913.599,5665 Fax: 913.599.1759

## SUBOUT SAMPLES

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582474 CoC Print Group 001 of 001



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**Chain of Custody** 

Monday, August 27, 2012 9:45:17 AM

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# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

	d Client Information:	Section B Required Proje	ct Info	mation;				Section C Invoice Information:								Page: of													
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of 80						SIGNATUR	E of SAMPL	ER:		1		94	]				ATE S		. 3	120	/12				P P	ğ, σ	Custo		Sam

## Sample Condition Upon Receipt

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Pace Analytical Client Name:	General	Dynamics Project # Cool27664
Custody Seal on Cooler/Box Present: Yes	Shipping Label Used  No Seals	intact: VYes No Proj. Name: REL]-11-11 R
Packing Material: ☐Bubble Wrap ☑Bubble B	Bags Foam	□None ☑Dther ZPLC
Thermometer Used: (191) T-194	Type of Ice: Wet	Blue None Samples on ice, cooling process has begun
Cooler Temperature: 24.0 /1.1 Temperature should be above freezing to 6°C		Date and Initials of person examining contents; 8-33-13-13-13-13-13-13-13-13-13-13-13-13-
Chain of Custody present:	12 Yes □No □N/A	1. All items that were not on ice were
Chain of Custody filled out:	Yes Ono On/A	2 for Dioxins/Furans and Perchlorates test.
Chain of Custody relinquished:	Yes ONO ON/A	10 50 1 CH
Sampler name & signature on COC:	Øyes □No □N/A	4,
Samples arrived within holding time:	Yes Ono On/A	5.
Short Hold Time analyses (<72hr):	□Yes MINO □N/A	6.
Rush Turn Around Time requested:	□Yes DNo □N/A	7.
Sufficient volume:	Yes DNo DN/A	8.
Correct containers used:	Yes DNo DN/A	9.
-Pace containers used:	Yes DNO DNA	
Containers intact:	Øyes □No □N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	□Yes □No ŪN/A	11.
Filtered volume received for dissolved tests	□Yes □No MN/A	12.
Sample labels match COC:	Yres ONO ON/A	13.
-Includes date/time/ID/analyses Matrix: 5L		
All containers needing preservation have been checked.	□Yes □No ŪN/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation,	□Yes □No □N/A	
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	□Yes ŪNo	Initial when Lot # of added completed preservative
Trip Blank present:	□Yes □No DN/A	15.
Pace Trip Blank lot # (if purchased):		
Headspace in VOA vials ( >6mm);	□Yes □No □N/A	16,
	¥.	
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:
Person Contacted: Comments/ Resolution:	COC to Client?  Date:  COMCULATOR  OTHER	Time: 83.13. Field Data Required? Y/N  Time: 83.13. Field Data Required? Y/N  Field Data Required? Y/N  Field Data Required? Y/N  Field Data Required? Y/N  Field Data Required? Y/N  Field Data Required? Y/N
Project Manager Review:		Date: A JULI

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)